

S E C O N D
R E P O R T
FROM THE
SELECT COMMITTEE
ON THE
MILFORD HAVEN COMMUNICATION.

*Ordered, by The House of Commons, to be Printed,
14 June 1827.*

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R E P O R T.

THE SELECT COMMITTEE appointed to consider the state of the Communication between *England* and the South and South-West of *Ireland*, by *Milford Haven*, and of such Improvements in the facility and security thereof, as may be deemed expedient; and who were empowered to report their Opinion and Observations thereon, together with the MINUTES of EVIDENCE taken before them, from time to time to The House; and to whom the several Petitions presented to the House, on the subject of the said Communication, were referred;—HAVE, pursuant to the Order of the House, further considered the Matters to them referred, and have agreed to the following REPORT:

YOUR Committee have felt it to be their duty on the approaching termination of the Session of Parliament, in continuance of the inquiries intrusted to them by the House, to submit the following Second Report of their proceedings, rather as a Minute accompanying the details of additional Evidence given before them, than from its present imperfect state with any ulterior view, or as embodying many additional recommendations. They have, however, seen ample reason to confirm the opinion which they before expressed to the House, of the urgent necessity of placing the Packet Establishment at *Milford Haven*, in a state fully adequate to the performance of its important duties, by the employment of Steam Packets of greater power, and by the construction of a Pier or Jetty of embarkation, for passengers, horses and carriages, which cannot be effected at any part of the Haven below *Hobb's Point*, with any degree of security to the navigation from the King's Dock Yard near *Pembroke*, or without interference with the Quarantine Station at *Nangle Bay*. Various plans for this object have been submitted to Your Committee, the particulars of which are annexed to this Report, and some communication has taken place with the Boards of Treasury and Admiralty thereupon. Your Committee venture to suggest that it may not be deemed unreasonable, that the expense of constructing the Pier should be defrayed from the Post Office Funds to which by the facility of embarkation, it will ensure considerable additional revenue; and also that assistance should be supplied by way of loan, to the formation of a new line of road, from the place of embarkation to the point of junction with the old road at *St. Clears*, on the security of the tolls and pier dues, to be vested, according to their former Report, in a separate commission established for that purpose. It will be seen, by reference to the evidence of Mr. Mortimer and Sir Edward Lees, annexed to their former, and of Mr. Nimmo's to this Report, that a bridge

Mr. Nimmo,
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projected over the Blackwater near Youghal, at the expense of about £.15,000. nearly one half of which has been already subscribed, would have the effect of lessening the distance between Waterford and Cork more than fourteen British miles. This very considerable saving of distance, and consequently of time, in the conveyance of the mails, Your Committee consider well deserving public attention, and would recommend the advance of a moiety of the sums requisite for its completion, under such regulations as may be deemed adequate to secure its re-payment, with priority over the claims of private subscribers, upon the ample fund which the tolls to be established for passing the bridge would supply. As the delay of the mails at Carmarthen has been at all times attributable to the impediments existing to the regular passage of the Severn, and the tardy arrival of the Bristol mail, to meet in due time the London mail conveyed by the Gloucester and Brecon coach, Your Committee have directed their earnest attention to it as an object of paramount importance. To the improvement of the Glamorganshire roads suggested in Mr. Telford's Report, they have nothing to add but their earnest hope, that though the difficulty of raising the funds necessary for the purpose may for a time suspend their execution, the gentlemen connected with that county will, from their turnpike trusts, and other resources, effectuate the beneficial objects which that Report contemplates, and for which facilities have been afforded by an Act passed in the present Session of Parliament; and Your Committee learn with pleasure that the Monmouthshire trustees, upon their division of that lower road, are disposed to make improvements therein as soon as their funds will allow.

Your Committee having completed this part of their inquiries, proceeded to the consideration of the best means of facilitating the crossing of the river Severn. This has been hitherto effected at the ferry nearest to the mouth of the river, denominated *The New Passage*. At high water, the width of the river at that place is two miles and a half, which is diminished full a moiety when the tide has completely ebbed. Mr. Telford, in his Report on this ferry, pronounces it to be "one of the most forbidding places at which an important ferry was ever established;" and although Your Committee, both by the admission of his assistant Mr. Palmer and of Mr. Telford himself, are justified in thinking that, deterred by the apparent difficulties, he bestowed less attention on this than on any other important point of the route to Milford Haven which he was directed to survey; they are forced to admit, that every witness has borne testimony to the great inconveniences and obstacles attending the crossing at this ferry in its present state; the rise of the tide is higher than on any coast in Europe, and its rapidity for a great portion of its flow and ebb causes uncertainty and delay in passing at this ferry. Moreover, the rocks and shoals which are the proximate causes of the violence of the current, render the navigation six hours at least in every twelve, intricate and inconvenient; indeed, at certain states of the wind and tide, a passage cannot be effected directly from one shore to the other; and it is then necessary to carry the mail (especially when coming from the Welsh to the English side of the river) a very circuitous course, thereby occasioning a great loss of time; some instances even have occurred, when the Welsh mail has had great difficulty in reaching Bristol before the mail had left that city for London.

It is, however, right to add, that though inconvenient, this ferry appears safe, for in no instance (of which Your Committee are aware) have the mail bags been endangered. The serious nature of the difficulties of this ferry being fully appreciated, Your Committee thought it their duty to inquire into the circumstances of that which is situated more than a mile higher up
the

Vide Mr. Telford's
Report, p. 155.
Mr. Palmer's
Evidence, p. 138.

Vide Water's
Evidence, p. 138.

Vide Mr. Johnson's
Evidence, p. 18.

the river, and called *The Old Passage Aust*. Its width is at high water one mile and a quarter, and though the rise of the tides is very great, yet their rapidity from various causes is less, and local circumstances, as well as the Piers recently erected as places for landing, justify the conclusion that merely as a ferry, this is the more eligible point for the mail to cross the Severn.

There are nevertheless many circumstances which make it inexpedient to transfer hither the conveyance of the Milford mail. It is farther from Bristol, and on landing on what may be termed the Welsh side of the river, the distance from the subsequent route is great, and the intervening ground is such as to increase the loss of time even beyond the increase of distance. Various propositions have been made to obviate these difficulties, but they would be attended with so much expense, and with so doubtful a result as induced Your Committee not to go minutely into their respective merits, but to turn their attention to the means of improving the New Passage; having therefore received Evidence from various practical and scientific persons to this point, they have no hesitation in expressing their opinion, that by the establishment of a Steam Boat of proper dimensions and adequate power, and by the erection of sufficient Piers, the New Passage might be rendered much more convenient than it is at present, and the crossing of the mail within a specified time be ensured.

These improvements appear to be capable of being effected at a moderate expense, so limited indeed is the amount of the estimate formed by one of the civil engineers, that Your Committee would suggest the propriety of an advance by the public of funds for the purpose of effecting them. An arrangement might easily be made for the repayment of the money so advanced, for the increase of the tolls which would without doubt result from facilities for crossing the ferry being afforded, would of itself go far towards the liquidation of this debt.

Your Committee has received some Evidence respecting the line of road between London and Bristol, which induces them to believe, that means may be found considerably to shorten it without injury to the great towns lying thereon; and they venture to suggest, that it would be highly advantageous to cause a survey to be made by Mr. Telford of the intervening country, with a view to the adoption of such beneficial alteration therein.

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MINUTES OF EVIDENCE.

Lund, 14^e die Maij, 1827.

THE RIGHT HONORABLE SIR JOHN NEWPORT, BARONET,

IN THE CHAIR.

William Wheeler, called in; and Examined.

HAVE you been a long time at the New Passage Ferry?—Twenty-four years
next July.

William Wheeler.

Do you know the run of the tides and the depth of water, at the different
periods?—Yes, quite perfect.

(14 May.)

Were you employed by the captain who commanded the surveying vessels, to
assist him in taking the various soundings and charts?—I was.

Will you state whether or no the tides at different periods of the year, with different
winds, are generally running with great velocity?—From eight knots to about two
and a half; varying at different states of the tide.

At what part of the tide is it most rapid?—The last quarter ebb, or the first
quarter flood.

Is the tide running up or running down?—We do not feel the effect of it in the
Passage so much as in the ebb tide.

That is, you do not feel the flood tide run with so much velocity as the ebb
tide?—No.

In what part of the Channel is the tide most rapid?—Between the Dun Sand and
the English Stones.

Is there not a channel called The Shoots?—We have not got that to encounter;
we cross above the Shoots.

Does not the rapidity of the tide at the Shoots, influence the passage from one
side to the other?—The heaviest current we have to encounter is between the English
Stones and Dun Sand.

Are the Committee to understand, that the rapidity of the tide at the Shoots does
not affect you in crossing over?—No, not so much as the other; I will not say but
what it does affect us, but not so much as between the English Stones and the Sands.

Then it has an effect, but not to the same extent as between the Dun Sands and
the English Stones?—No.

Which is most difficult with a northern wind, to cross from the Black Rock to
Gloucestershire, or from Gloucestershire to the Black Rock by the New Passage?
—From Gloucestershire to the Black Rock, upon the ebb tide.

Does the same difficulty exist upon the flood tide, or does it prevail more coming
from Monmouthshire to Gloucestershire?—More from Gloucestershire to Mon-
mouthshire, with the wind to the northward.

What difference does it make if the wind is to the southward?—It is more free
from Gloucestershire to Monmouthshire.

How is it affected by the wind to the west?—It is more free from Monmouthshire
to Gloucestershire.

When you have not the power of going by means of sails, but by a steam-boat,
does that make the passage more difficult, or is it the same?—It chiefly depends on
the wind and tide if it is by the steam-boat.

What is the breadth of the passage between the Dun Sands and the English Stones
at low water?—It varies very much every week or every fortnight; it may stand for
three weeks.

Then the Dun Sand is a shifting bank?—Yes.

The English Stones is a rock?—It is a fixed rock; I have seen the sands out
within 150 yards of the English Stones.

N 4

That

William Wheeler.

(14 May.)

That is to say, it approaches more to the south at one time than at another?—

Yes.

It changes from east to west as well as from north to south?—The sands lie along the north-east.

Is the variation up and down the river, and not from one side to the other?—Not on one side, up and down; it varies between the rocks and the sands.

Have you ever known it nearer than 150 yards to the English Stones?—No.

Then is there always ample room to navigate any passage that may be wanted between the Dun Sands and the English Stones?—Generally about four or five fathoms of water.

How is the width?—There is plenty of width.

Has there been always plenty of room?—Yes, in the lowest tide that ever ebbed out.

What is the most shallow part of that channel?—Following the rocks along, they will carry you from the channel way to the Gloucestershire side, at the lowest veer that may be from three to four fathoms of water; the higher the tide flows the lower it ebbs out.

Is there not a small rock called The Dumphris?—That lies off the neck of the English Stones.

At a little distance from them is there another rock called The Charston?—That lies to the eastward of our passage.

Is the water of great depth between the Dumphris and the Charston?—I got eight, ten and twelve fathoms at different places.

Is that the deepest part of the passage?—It is.

Coming near to the Monmouthshire side, how great is the depth of water at the lowest tide alongside of the rocks?—Eight or ten feet; I cannot tell exactly, I never was so particular, there was plenty of water for steam boats or for vessels.

What is the depth of water at the same point at the highest tides?—I have known it flow 52 feet.

The distance the tide runs out at low water from the land is very considerable, is it not?—I cannot tell how many yards it is.

But it is a very considerable distance, is it not?—On the Monmouthshire side it is not, not the way we come down by our present rocks that are formed by nature, it is a distance off, but there is deeper water lower down.

At all periods of the tide, is there deeper water lower down than where you land?—Yes.

Why do you not land nearer the shore when you have deeper water there?—There are rocks formed by nature where we land against; it is a greater distance from the shore; but where the deep water is, it runs flat shelving off.

Then the water is not deep enough?—Yes it is quite deep enough; but there are rocks where we land formed by nature, and below there is a flat gravel; but the water comes in bold to the flat gravel 150 yards nearer.

Then that water is not deep enough to float your boats?—Plenty of water.

Supposing a pier were constructed on that point, would it enable you to land there?—Yes; I think if a pier was to be built it ought to be built in that direction where the water comes in.

You mean opposite the place called St. Andrews?—Rather below, nearly on a line with it.

Does the tide run up to a greater distance than it does at other places?—At low water time it is surrounded with rocks all around; but there is no tide moving one way or the other.

You say you conceive the pier had better be built somewhere about St. Andrews?—It would be a shorter distance to it.

What would be the height of that pier above the water, at high water mark, supposing it only to be high enough for the boats to float against it?—It should carry eight feet of water along side of it regularly.

How many feet up the pier would the high water reach, supposing that were the case?—I do not know the distance.

Would it be a considerable distance?—I should consider 150 yards, or more, I cannot tell exactly.

Is there a very great power when the tide runs out at its full force?—No; as you haul in shore, following the pier, you keep an easier tide out of the current.

As to the Gloucestershire side, are there more difficulties existing there than on the Monmouthshire side, at landing?—It is a longer flat.

Where

Where is the easiest place to land, supposing a pier to be erected?—Following the creek or pill it might be made navigable below at half tide of ebb.

Has it been proposed to deepen that pill to make a sort of harbour?—I once proved it with a gentleman; I sounded it with a bar to find the foundation of it, I tried it with a nine-foot bar.

You never got to the bottom of it?—No; I never did.

Supposing it practicable to make that pill a small harbour, would that be the best place for the landing?—It would be the most sheltered place.

Would there be any difficulty, at any period of the tide, in navigating to the entrance of that pill?—It does not come out further than half tide at present. I do not think it could be carried out much further than half tide to a vessel of five or six foot draught.

What is the draught of the steam vessels?—Five feet six inches the one we have worked.

Are they not made much less now?—I am not much acquainted with them. I have been informed that about the Clyde, a thirty-horse power draws three feet of water; ours is only a twelve-horse power, and she draws five feet six inches.

What is the draught of your large mail boat?—We have different mail boats, we have a row boat.

What is your large sailing boat?—Two feet and a half; it depends on the passengers.

But when she is laden, what is her draught?—Three feet.

Do you think it would not do to have the pill as the only place of running into, because at the half tide you might be without water?—There ought to be something built that the run of the pill should keep it from gathering; it is the highest cut to low water, it is marl rock.

Would there not be a collection of gravel at the mouth of the pill?—No; it is a drain from the level of several thousand acres of land, and after the rains it carries all the gravel away, and washes it all to low water.

Do you know the run of the tide at the mouth of the river Wye?—Yes.

Is that very rapid at certain periods?—It is not so rapid as it is in the Shoote before the rocks are covered; it is the quickest tide running below the Old Passage; the further up the quicker the tide runs.

Could you ever cross from the New Passage to the Old Passage?—Yes.

Is that a difficult navigation?—I never did it without a case of necessity; when I could not get to the New Passage I went to the Old.

You must know enough of the steam boat to be aware, that it is to a certain degree independent of the wind; would there be much difficulty from the state of the tide, the rocks, and so forth, in navigating between the New and the Old Passage?—There is not two feet of water.

Whereabouts is there not?—Between the Dun Sands and the Sugar-hole Sands.

Whereabouts do you call the Sugar-hole Sands?—Flowing from Chistle Pills.

What difficulty would there be in navigating a steam boat between the Old Passage on the Gloucestershire side, and the New Passage on the Monmouthshire side?—There is plenty of water.

Is that, from the run of the tide, a difficult navigation?—Yes; there is a great tide to encounter running off the Chapel Island.

Is there plenty of water to float a vessel the size of a steam boat if it draws six feet of water?—There are three fathoms of water.

At low water do you know what the depth is off the Chapel Island?—It varies very much; it flows close to the rock two fathoms and a half, three fathoms, and four fathoms in some places.

Is there no place that you are aware of, that is under two fathoms?—No; I could point out a place in the channel, half way between the Black Rock and Chapel Island, where there is 110 feet at low water.

Then there is no difficulty in navigating a vessel that draws six feet of water between the Old Passage and the Black Rock?—No, not six feet; I never saw it but there was that much of water and more.

You mean in a vessel sufficiently large to make it safe to navigate?—It is sometimes incumbered with sands from the way it varies and alters, so as nearly to join the Dun Sands.

Is that sufficient to impede the navigation of vessels?—I have seen it not altogether safe, but it seldom happens.

Is that cleared away by the ensuing flood tide?—Yes.

William Winder,

(14 May.)

When the sands are in this position the tides are not in a very rapid state?—It gathers at the ebb tide, and makes away in the flood tide.

What would be the difficulty of navigating from the Glamorganshire Old Passage to some of the pills just under Neath?—There is a very strong flood tide to encounter there, and with a westerly wind it must be a clever steam vessel that could make the passage.

Is that almost out of the question?—Yes; I believe it.

What would be the difficulty of navigating from Gloucestershire Old Passage to St. Pierre's Pill?—It would be worse the further you get.

If you started from the Aust Passage, would you rather navigate your vessel from the Black Rock to the New Passage where it is, than in any other part between the mouth of the Wye and any other place?—Between the mouth of the Wye there is the Chistie Sands; there is no water there between St. Pierre's Pill and the sands, there is no water scarcely; I have seen it dry, and could walk across it and not be up to my knees.

If you wish to get from the Aust Point to Monmouthshire, would you prefer any other point?—You must go down the main channel.

Is there no other place between the Black Rock and the mouth of the Wye where it would be convenient to land?—There is no place at low water, not at every tide.

The navigation from the Aust Point to the Black Rock is more difficult than the navigation, as it is now across the New Passage?—A great deal more.

Is it not usual for a vessel that is a steamer?—We have the wind westerly I consider nine months out of the twelve generally; there you have got to face a westerly wind, and in the face of that and a flood tide flowing strong, it would be a clever steam vessel that would go from Aust to Black Rock.

Do you consider a very common steam vessel would go from the present New Passage to the other side?—No, not a very common one at the last quarter ebb; if I had a vessel that would sail at the rate of eight knots an hour, I would engage a passage within twenty minutes.

At all periods of the wind?—All periods of the wind and tide.

Do you mean to say, that you would do that with such sailing vessels as you now have?—I mean a steam vessel.

What did you mean, when you said that with a sailing vessel you would beat any steam vessel?—I mean that with a steam vessel that would go at the rate of eight knots an hour, she would encounter all tides and winds which I have seen.

Is there always water for a steam vessel drawing six feet, in the New Passage, from one side to another?—No.

How much; is there sufficient for five feet draught?—Five feet is too much to take the advantages of all the tides, it would be better if you had one down to three feet or three and a half.

Then it is not that there is any difficulty in getting from one side to the other, but the difficulty is in landing the vessel upwards of three feet draught?—No, I do not mean that one way or the other, I mean that the less water the vessel draws, the more you cheat the tide and it gets out of the current.

Therefore there is less impediment?—Yes.

Do you wish piers to be run out much further than they now are, or is a shallow draught of water essential for the navigation of the passage?—The rocks we have got are out far enough.

Then it is not for the sake of landing merely, but for passage that you wish to have vessels not drawing more than three feet of water?—It is the navigating, and not merely the landing.

Supposing the landing-places were exactly as they now are, and you had a steam vessel drawing three feet of water, in what time could you make an average passage do you think?—I could not average a passage for landing, we have to go from one place to another, we have got to wait; it is not a regular thing.

In point of fact, to make the average passage certain, you must have piers differently constructed from those which now exist?—Yes; a regular thing, so that whenever a vessel came over she should land.

Can she always land under that rock?—Sometimes.

Supposing it was made a pier, could you not always land under the shelter of that rock?—Yes.

Suppose it was raised near the passage house, would it not be better?—It wants raising a little, and to be made in a better form.

H

William Wacker.

(14 May)

If it were made on a regular inclined plane, could you always land there under shelter of the rock?—Yes.

With plenty of water?—Yes.

If the pill were dry, where would you go next?—We would follow the pill down, and let the water from the pill clear away on one side of the pier.

Would not the tide running down so strongly on that side, deposit a great deal of sand there, which comes down and is left by the tide?—Yes; there is what is called The Sugar Hole Sand, that is all.

Would it not always be the case, that it would be filled up by the tide?—No; the water from the pill would clear it away.

There is not a great quantity of water there, is there?—Sometimes there need be a reservoir; there is always a got way from the pill where the sand is washed away, but it is deeper in winter than in summer.

Supposing your piers to be constructed, so that you could land the moment you wished, what would be the average passage in a steam boat drawing three feet of water?—On an average, near 20 minutes.

You think it must be an extraordinary sort of weather to exceed half an hour?—Yes; it must for a vessel of that power.

What sands shift very much about this passage?—There is no shifting sand, except Dun Sand.

Would not the sand collect in the mouth of the pill, and be washed out by the tides?—There is little sand there; it is all mud that collects with the settlement of the tide; the sand lies farther out in the deep water in the channel way.

With a sailing vessel you would say the average would be much higher, taking both tide and wind to be adverse, than 20 minutes?—More than that.

Would you say an hour?—From house to house it is as much as we can do to average it in an hour the year round; the mail coming from the Welsh side, till it gets to Gloucestershire.

Do you think, that with the sort of steam vessel that has been described, and with the alteration of the pier, half an hour would be amply sufficient?—Yes, quite.

Do you belong to the mail boat?—No; I work the steam boat.

That is out of order, is it not?—Yes.

How much water did she draw?—Five feet six.

With that depth of water, was she of any material service to the persons in the habit of crossing that passage?—Yes.

In point of fact, any steam boat not exceeding six feet, will be of service crossing the passage?—Yes.

You think one drawing three feet and a half would be the best?—Yes.

Do you conceive the sailing boats could be built or constructed upon another principle than they now are?—No; we have got as good boats as we need to have.

Would no alteration in their condition, or improvement in their shape, facilitate the passage across?—Not a bit, I cannot see any better boats; I am well acquainted with boats sailing in the three channels, they are both well finished boats, as good as need be for the purpose.

Then the only improvement as far as navigation goes, must consist in having the steam vessel?—There is nothing that will do it equal to a steam boat.

Would that be incomplete unless the piers were formed on both sides of the channel?—It cannot possibly be done without piers.

At what rate does the tide run between the Dun Sands and the rock?—About eight knots an hour, from seven to eight knots.

You do not know any thing of the expense of the piers?—No, I cannot judge.

Alexander Nimmo, Esquire, called in; and Examined.

THE Committee wish to have from you such information as you can give them; first of all with respect to the place of embarkation of the mails at Dunmore, how long is it since the construction of the pier has been commenced?—It was commenced in 1814, but nothing was done till March 1815.

Has it been going on uninterruptedly from that time to the present?—It has.

Is it yet completed?—It wants some of the top of the parapet to be finished, and likewise some repairs on the outside.

How long is it before it will be so far finished as to be capable of admitting the packets

Alexander Nimmo, Esq.

Alexander Nimmo,
Esq.

(14 May.)

pockets to be transferred there?—The packets have been sailing from it for upwards of seven or eight years.

It is found to answer all the purpose of giving sufficient protection to the packets?—Completely; we have never had an accident within the harbour, of any description whatever.

Can you furnish to the Committee a detailed account of the progress of that pier, and of the sums of money that have been laid out on it at different times?—Yes, there is such a detailed account, which has been drawn up by the Postmaster-general of Ireland, and transmitted to the Treasury, containing the whole history of the operations from the commencement to the present time; and an account of all the expenditure, with drawings, and maps of places, and so on.

Of what draught of water are the vessels that pier is capable of accommodating?—Twenty-four feet deep along the quays at low water spring tides, at the point of the pier gradually diminishing, and the pier-head is in 30 feet low water spring tides.

To how many packets is it capable of affording protection?—It has never had so many vessels as it could with ease accommodate, but I suppose it would hold seven or eight times the number of packets that ever were on the station; I have seen 40 vessels of one kind or another in it; I suppose it might hold a hundred sail.

Has it afforded protection to a great many vessels besides the packets?—Yes; but the packet captains rather wish to keep it to themselves; and I believe there are instructions given to the harbour-master not to encourage any other vessels to come in than those which are wanted for the supply of coals, and for the accommodation of the packets; at the same time there is no hindrance.

Will the remaining works to be done at the pier to complete it, be attended with any very considerable expense?—About three or four thousand pounds; part of it is for compensation.

As you are well acquainted with Dunmore, having been there so often, have you heard of any inconvenience occurring to the packet establishment from want of accommodation of passengers?—There is the greatest inconvenience from want of an inn there; and this arises first from the land in the vicinity; it could not be got at lease from the proprietor, Lord Waterford; it was previously leased, but he had not the power of granting a new lease, but now the Post-Office have agreed with him for that portion which they want for the works, and he offered to grant room for building an hotel to any person who would undertake it. The chief dread I believe has been, that people were uncertain as to the intention of the government with respect to the packet station; and the accommodation now is of the worst description, so that passengers are deterred from coming by that passage.

Are you at all able to speak as to the average time in which the packets make their passages?—I am not sufficiently well acquainted; I suppose the Committee have it from better authority; I have seen them land as early in the afternoon as two o'clock; sometimes they do not come in till two o'clock in the morning; they sail from Milford a little after six. The passage from Dunmore to Milford is rather quicker; a packet is never wind-bound in Dunmore.

Can she get in at all times?—At all times, and in all weathers that she can get to sea.

Immediately on leaving the pier at Dunmore, is she not making clear of the harbour at once?—Yes; you are at sea. Dunmore is under the swell of the Bay of Biscay, the open ocean, but as soon as you go round the pier head, it is smooth water.

You have examined the road from Waterford to Cork, and particularly that part of it in which it is proposed to make considerable improvement by building a bridge across the river Blackwater at Youghal?—I have been professionally employed upon that particular thing.

Has there been any determination come to with respect to the kind of bridge which is to be built at Youghal?—Not yet; I have had it surveyed, but have not made my report to the committee of subscribers as to the most advisable bridge, but I have laid before them plans for bridges at three different places, of different descriptions.

How many miles would the bridge at Youghal curtail the present communication between Waterford and Cork?—In the best form of road connected with it, and in the best position, it would curtail it fourteen English miles.

In that line is it proposed to leave out Lismore and Cappoquin?—Yes.

Is that road perfectly practicable in every part, with the exception of the passage across the river Blackwater?—It is; there is a hill near Danganavan which can be easily

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easily overcome, and is much easier than one or two hills of the present line; the rest of the line is all very favourable.

Do you know if any progress has been made in the subscription for building the bridge?—I have communications from the secretary of the committee of subscribers, but he does not state to me to what extent the subscription has been made. I understand they have nearly completed the original sum specified, about 20,000*l*. I am told there are subscriptions very nearly to that extent; I do not speak that from any authority.

Do you adhere to the plan you originally gave in, or do you alter it?—The chief difficulty arises as to the navigation. I should be very desirous to bring the bridge down to the town of Youghal. If it can be made, unobjectionable to the navigators, in the upper part of the river, about two miles higher up, there is a very favourable situation for a chain bridge; but a wooden bridge below, could be got at less expense.

Is the bridge for which you say 20,000*l*. is calculated as the expense, a wooden bridge or a chain bridge?—A chain bridge.

What would be the difference between a wooden and a chain bridge?—One of the differences would be, that a wooden bridge might be obtained for 12,000*l*.

Would that be on the same spot?—About half a mile further down.

What would be the expense for the one near to the town of Youghal, the wooden one?—About 15,000*l*. or 16,000*l*. I have not made an estimate of that, not having the plan yet.

Have you surveyed all that part?—I have had it all surveyed.

Do you suppose that building a bridge there would have any effect upon the current of the harbour, or on the navigation of the river?—The quays of Youghal town have silted up very much of late years with mud, and if we built a wooden bridge near the town, it would be proper to contrive it so as to scour these quays; I do not think it would have any other effect.

Would not that be a very great advantage to the town and the quays?—No question of it.

The chain bridge would have no effect?—None whatever; it would not interfere with the navigation nor the shape of the channel.

You have been in Youghal?—Repeatedly.

Do you know that vessels cannot load in the quay there, in consequence of its filling up, and that they are obliged to go out when they are half laden, and get the rest of their cargo in the river?—I am not sufficiently acquainted with that; they load with long gangways and booms.

Are you acquainted with the road by Aghish, from Dungarvan, and would that be a better line?—It would be a little more level, but somewhat more round.

What distance?—I suppose about a mile.

Are you acquainted with the harbour of Milford?—Yes.

Have you looked at Mr. Telford's report on the subject of that harbour and the packet establishment?—Yes, I have.

Do you consider the building of a pier to be a matter of necessity, for the due accommodation of the packet establishment?—If you go every night up the river, you may do with a very simple pier.

Do you consider it necessary to the carrying on the packet establishment?—Yes.

Is not a considerable inconvenience found in respect of putting horses and carriages on board ship?—The greatest.

Do you not consider that that has had a considerable effect in diminishing the intercourse by that passage?—No doubt of it.

Whereabouts in the harbour do you conceive a pier could be run out, with the least injury to the naval establishment at the dock-yards, and to the greatest convenience of the passengers?—I think the further up the haven you go, as you have steam packets, the more useful for the public, any where above the dock-yard would answer well; I suppose that has been sufficiently investigated.

Would it be practicable to carry out a pier on the Milford side, where the town of Milford is, to a sufficient depth of water for the packet to lay, without materially impeding the navigation from the dock-yard and the ships of war?—If you carry a pier in the neighbourhood of Milford, in deep water, you will impede the navigation, except you made it on piles, in which case the benefit would fully compensate any disadvantage.

Have you looked at the proposed site of a pier at, or a little above, Hobb's Point?—Not

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—Not since it was suggested; I have looked at the ground and along the dock-yard walls.

Do you apprehend a pier could be constructed there, at a moderate expense?—I see no reason to doubt it.

Without going into details, to what extent of expense can you suppose such a pier would be required adequate for the accommodation of the packets?—A pier would not be required for sheltering the packets, they could lay in the river.

But for the packets to haul into as a wharf or jetty, what would be the amount of expense it would cost?—I would require some data to calculate upon, I am sure it could be done for 6,000*l.* or 7,000*l.*

You do not apprehend it would be necessary to erect a pier of considerable strength for protection?—The draught of water of the packets is about ten feet; I presume they would wish we should go in ten feet of water; the particular cut of a steam packet does not oblige us to make the wall so upright as we do for other vessels, for the spousings keep them at a distance from the wall, and I do not think it necessary to go to much cost for the foundation for that purpose, unless we are in troubled water, which we would not be above the dock-yard.

Do you conceive there would be any difficulty in navigating the packets by night, from Hobb's Point and thereabouts down the harbour?—That is a question that would be better answered by a seaman. I know no difficulty but the Carr rock which is very near that. In navigating down there could certainly be none, and in navigating up I think very little. The Carr is a ledge of rock which runs from the western side of the dock-yard, a little way off.

Do you know any thing of the course of the road between Hobb's Point and St. Clear?—Excepting that I have travelled the road from Pembroke all the way to St. Clear, I know nothing of the new intended line but what I know from the plans.

Do you or not conceive that if the projected improvements of the Milford passage are carried into effect, a much greater resort of passengers than at present will follow it, and that a considerable advantage to the communication between Bristol and Ireland will be the result?—There would be a considerable advantage to the communication, and I think an increase of passengers.

Have you been engaged in examining the state of the Gloucestershire roads between the New Passage and Swansea?—I have examined particularly that part of the road in the neighbourhood of Swansea and Briton Ferry, and also the New Passage, but only in a very cursory manner the rest of the roads.

Do you consider that any and what improvement can be made with respect to abridging the distance and improving that road?—The principal improvement is between Swansea and Briton Ferry, which can only be done by bridging these two rivers.

Would that shorten the distance considerably?—About five miles.

In making that improvement, is it proposed to omit any and what town?—Neath.

Can the post communication between London and Neath be secured without difficulty notwithstanding the road is turned from the regular course, and how far distant would the road run from Neath?—I would require to measure the map for that. It is about two miles I think; but it is reported by Mr. Telford.

Can you give us an opinion with respect to the passage across the Severn, and as to the capacity for improvement there?—I think a great deal of improvement is practicable across the Severn, and is very much wanted I believe; it is one of the worst ferries in His Majesty's dominions.

Which do you mean?—The New Passage.

Would the improvements that occur to you to be made in that ferry, be attended with very considerable expense?—I suppose the object would be to get as much improvement as we could at the least possible expense, therefore I confined my examination principally to the practicability of making better ferry slips than exist there now, and that, I think, is practicable at no great expense compared with the benefit to be attained, but I have not made any estimate of it.

How far do you think the improvements that occur to you to be made there, would shorten the time of passage and secure the more regular delivery by the mails?—I do not expect it would shorten the passage, except by preventing delays near low water tide; but it would be a very great convenience to passengers, and at times to the mail. The New Passage at low water, though it looks very wild from the number of banks and rocks, is rather a more advantageous passage than the old one, for the eddies behind these banks and rocks facilitate crossing the streams; but
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landing and shipping at low water is the most disagreeable thing possible, and I think it could be very much amended.

When were you over New Passage last?—A fortnight ago.

Have you passed over the Old Passage so lately as that?—No, not at all, but I have been at it.

Are you aware of the new works constructing there?—They were beginning when I was there last.

You cannot judge, can you, of what effect they will have in facilitating that passage?—I think they must in some degree benefit the Old Passage, by having made a better ferry slip on the far side; the chief difficulty is on this side, on which they have done nothing yet.

Do you mean that they have not effected an advantage, or that they have really done nothing at all?—I am not aware that they have done any thing; I am not correct in so saying, I am told they have made a little landing place at high water.

Do you conceive that the New Passage slips might be constructed at a trifling expense?—Viewing the case as one to which we can get for a very little expense a great deal of good, I should be sorry that we stuck at that.

What sort of a sum would you call a comparatively little expense?—I think if we could raise 1,000*l.* on one side, and 1,000*l.* on another, we could make very respectable ferry slips.

Do you mean by ferry slips an approach for small sailing boats, or should you make slips capable of receiving a steam vessel which draws rather more water?—I would only contemplate the arrival and departure of such boats as ferry over the cattle. The steam vessel that is employed does not draw more water, and I think a steam vessel could be made to draw much less water than this does; it draws five feet.

Would the slips you would construct be for vessels drawing five feet water?—Yes; the slip on the Gloucestershire side I would form, by prolonging the gravel beach down to low water, and making a cut through the red marl along side of it, that is all I would attempt there.

Are you aware of the force of the tides at certain periods?—I look upon that as one of the things I must take into account for keeping my slips in order.

Do you not consider the violence of these tides as an objection to your proposed slip?—No, I do not expect it to be raised much above the ground.

You are acquainted with the velocity of the tides, and the heights to which they occasionally rise?—Yes.

As to the Monmouthshire side, where would you propose a slip?—I would make one here [*the witness referred to a place*] by continuing the present road as you come from the inn, across where these red rocks are down to low water, it would be rather more expensive; that I would make a paved slip.

Would the same observations that apply to this side apply to the other, as to the tides?—Yes, but differently; I have a tolerable shelter by the rocks on one side at low water, and I must make that slip of stone; the other side I would make of gravel, and a cut in the beach.

With these slight improvements, do you conceive that the Ferry would be so much improved as to remove from it the disgrace you attach to it as being the worst ferry in His Majesty's dominions?—I conceive it would be much improved.

At the two bridge sites near Neath and Swansea, do you take the points of passing the same as Mr. Telford, or any others?—The same as Mr. Telford in this way, that he and I have jointly consulted upon that matter since I was requested by the Harbour Trust of Swansea to examine it; I showed Mr. Telford my plan, and the mode which I proposed to cross it; he agreed with me in the propriety of so doing.

Was your proposal as to Swansea to make a floating harbour?—No, an iron arch at Foxhole, so as to cross the masts of the ships; and at Neath, so as to elude five sixths of the shipping by a wooden bridge; but upon examination, we both agreed, that a chain-bridge would be preferable at Briton Ferry.

With regard to the Swansea river, you have changed the positions of the bridge from Mr. Telford's plan?—Mr. Telford's original proposal was, to come across nearly the middle of the town of Swansea; there were serious objections to that on account of the navigation; accordingly we proposed, and both he and I have given plans to that effect, to obtain the same thing by crossing at the lower end of Swansea, provided we could make still water, and float the harbour, which seems desired by

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the town of Swansea; but I fear the expense is so great, that the town would not be able to accomplish it.

Then the next point consistent with the proper navigation of the river is Foxhall, is it not?—Yes.

That line, as far as the communication between the new dock and Milford Haven, is as good as the one originally proposed, is it not?—Rather shorter.

Is it as good generally speaking?—Fully as good.

Can you state at this moment, what would be the expense of the bridge proposed at Foxhall?—I proposed an iron arch at Foxhall; and as they have so much iron manufacturing there I would make an ornamental one, which could be done for 10,000*l.* with all its approaches; if they use less ornament there would be some saving.

The floating harbour and the bridge you estimate at 30,000*l.* or 40,000*l.*, do you not?—It could not be done for less.

Do you think it practicable to construct the steam boats, drawing three feet and a half water, to stem the tide to make the passage across conveniently?—I understand that steam boats have been made of much less draught than that.

Less than three feet and a half?—Yes.

Do you think it practicable?—Yes.

What power would you put in a boat of that draught?—It would depend on the tonnage you use; you should not spare power.

What do you propose?—If you make a shallow draught vessel, you would require thirty or forty tons. I have an account of a shallow steam boat made in America.

Have you an account of any made in Great Britain?—They told me they were building a vessel for the Old Passage when I was down there, of less draught than that; but I believe there is a gentleman who can give the Committee more precise information as to that.

Are you aware that the tide runs at the rate of eight knots an hour?—I do not doubt it does, but I do not know.

Would it stem that current?—In crossing the New Passage you must take precautions to elude the current by means of the eddies.

Is not opposite the Shoots in the centre of the passage the strongest part of the current?—Yes; but you can run up in the eddy again. The ferryman of the New Passage is a very intelligent man, and would confirm what I say.

You never saw a steam boat drawing so little as three feet and a half water?—No; I have not.

Do you know any thing of the communication between Hereford and Brecon?—Yes; I have travelled that road lately; last Christmas I travelled that road, and I travelled from Hereford to Tewksbury this last March.

Is there any mail communication between Hereford and Brecon?—There is a coach which runs three times a week.

Does that coach run now?—I came with one last Christmas when I was there; I travelled from Swansea to Brecon across the hills, and next morning I found a coach that took me on to Hereford.

The gravel bank you were speaking of you would make at the entrance of the pill at low water, cutting through that red marl?—Yes; and by a deep cut we would make it so that it would always keep clear; the only use of the gravel would be to make the road.

Would it be necessary to make a wall?—I would not attempt it; it is troublesome in such streams to keep the masonry together. On this system we should do more execution by gravel and clay than by masonry.

You would abandon the Point Quay and go to the other side of the rock that projects in the deep water?—I would not make use of the Long Rock except that it might give me protection; at the low tide where the large blocks of stones are I would come across down to low water, and I can get down to low water quickest there.

There is a rock runs out on the west side, under which the boats lay; do you propose to make use of that?—No not at all.

The stones you mention are lower down?—Further down.

Are you aware there is a steam boat from Bristol to Chepstow?—I have seen her repeatedly.

She stems the tide by the Shoots, when there is a flood tide, does she not?—I cannot tell that.

You

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You have never been in the boat going up to Chepetow, when the tide was running down?—I never have; she generally sits herself to the tide. I have thought of various other ways of crossing the New Passage, but I would rather not trouble the Committee with them.

The Committee would be glad to hear any other suggestions you have to make upon the subject?—I think the New Passage is not too far across to go over it with a warping chain.

How would that do for navigation?—It would lie at the bottom; I have crossed the Maes, in Holland, which is very nearly as far as that, the boat being slung to the rope.

Is there not a sand in the centre of the river, which would prevent its acting?—No; if the vessel had the pulley and the chain, it would run over by the sheer in the same manner as it is common to cross rivers on the Continent.

Would that be moored in the channel?—It would be laid right across the whole river; and then you may, by winding up the chain, pull the boat over, as is done in the Arun and at Plymouth.

When there is any swell, would it be practicable to use the chain then?—We should be no worse off than we now are; it might be tried.

There is a tremendous swell, is there not, sometimes?—There is sometimes, I am aware.

Are you aware of a pill on the Welsh side, above the Long Rock?—Yes.

Is it practicable to make a landing place there?—I would rather be disposed to turn that along the red rock, and run it down by the slip which I speak of, than to make a landing place there, for it would be troublesome to get into it at low water; it would be convenient at high water.

Could you not approach to the pill?—You could always come in there, but up to the pill there is a breadth of strand, and you would not be able, by cutting a pill in that strand, to make a passage.

Do you see St. Pierre's Pill?—Yes, I do. (*The witness here referred to a plan.*)

You do not mean that?—No.

There is one lower down by Long Rock?—That is what I allude to.

Supposing the water of St. Pierre's Pill to be turned down into that lower pill with back water, would not that keep it open so as to effect a landing place there?—I do not think that would be worth the expense for the benefit to be got by it; it appears to me by making a dam at Long Rock, we should get as much back water as would answer the purpose well enough opposite the ferry house; I would make a slip where the red mark is down to the figure 10, and embank between that and the Long Rock, that would form a sort of pier on the other side.

What expense do you consider it may be made for?—I have not made an estimate, so much depends on the style in which we execute these things; I would always like to know who is to pay for it, that I may suit my project to his purse; if I had public funds, I would make the thing better and stronger, intending it to be a permanent work, but if it is only to make shift and for a private person, I would construct it differently.

The rough stone would be as effectual and durable as any other?—Yes, I do not propose making a high pier there, for the tide is so very high, it would come to an enormous sum of money; I only intend it to be a slip which may be covered with the tide, and the vessel will run up to a dry part.

That would be sufficient for the purpose of a steam boat?—That is what is common at all ferries, they have such a thing at Duoden, and there the steam boat runs in on the opposite side in the gravel beach; a little outside of the passage house to the right of it, I make a cut nearly on the line of that channel which is drawn in this map, that is a regular strait cut down to the stream; I think if the cut is so made that the ebb tide of the Severn shall wash down it, instead of running athwart it, the tide will tend to scour it instead of filling it.

You said you had seen a chain across the Maes, a river of equal extent, and of equal tide; but was the swell as great?—It was a cable, by which they passed over; it is not so broad as the New Passage, but it is a breadth that might be compared with it.

Is the swell as great there as in this part of the Severn?—I do not doubt that at times it is fully as great; there is not such a stream.

Is there any other plan that you have thought of?—Yes; I consider it quite practicable, if we had the means of doing it, to carry a bridge way along these shoals

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shoals, till we come to the Shoats, and then cross that by a cable, and by a fly bridge.

What would be the expense?—I have not an idea; I am afraid it will be very great.

Do you contemplate a chain bridge?—I do not contemplate a chain bridge, but a *pont volant*, slinging by a cable, moored both ways.

Is not the force of the current much greater in the Severn than in those rivers which you have mentioned abroad?—That would not injure us, when we had our *pont volant* moored out, it would rather assist, for the boat runs across by the sheer she gets by the action of the tide.

Will the swell be dangerous?—We could not get rid of the swell.

Would not the sort of project you speak of be very expensive, if near the sea?—If we have a good foundation, and if we could make it of iron, I do not think it would be much; I would not attempt stone, unless I had very large funds, I would put it over in iron.

Mr. Telford suggested the idea of a chain bridge across the mouth of the Wye; are you conversant with that part?—I think it might be done, for there is very high ground on both sides. I do not suppose there would be much saved, as we have a bridge at Chepstow, I mean for the communication westward.

The idea of a tunnel under the river at Swansea is suggested; what is your opinion as to the practicability of that?—I think it is practicable.

Would that be expensive?—Not very expensive.

Would it cost as much as the bridge across Foxhall?—I think it would cost as much.

Not more?—Probably more.

Do you mean that it should be under the river, where the present ferry is?—Somewhere thereabouts.

You think it might be made there at a moderate expense?—Yes.

Could you make a rough estimate?—No; but the reason I think it would not cost much is this, that in the harbour we could construct a tunnel by turning off the river for the one half of the distance, and then turning it back again when we had built the tunnel.

Do you contemplate cutting it open?—I would cut it open to put the tunnel; we always cut open when we can.

Would not the time of working be limited by that means?—Not if we dammed it out.

You must dam it on both sides?—Of course the operation would be a considerable interruption to the trade of Swansea.

What would you think of making one on the same principles as that at Rotherhithe, under the river?—It would be a great deal less expensive.

But you consider it as practicable?—Yes.

And not much more expensive?—I am not sufficiently acquainted with what is doing under the Thames, but you are there encountering all the difficulties you can have in the foundation of a tunnel; whereas in Swansea there would be an easy method; we would cut off a piece and make a coffer dam; then we would cut it, and cover it over again. We have none of that danger which is attached to the undertaking at Rotherhithe.

Are you aware of the state of Neath river, with reference to such an object?—It would be more difficult to do it there; for at Swansea, from what I have been able to discover, we find tight clay, and at Neath we have loose sand and rock.

Do you think that sand goes deep?—No, not deep under Briton Ferry; you can feel the rock with a sharp iron all across.

Then you could make the tunnel through the rock?—There would be a good deal of drainage; it would be less expensive than going through the sand.

The rock would have fissures to let through the water?—Yes.

The steam engine might be employed to keep it dry?—Yes.

That would be a continual expense?—Yes.

Do the people of Swansea think a bridge would do them harm?—A draw-bridge would be an objection to navigation; but one like that at Sunderland I do not see any objection to. Mr. Telford's first plan was to pass by a draw-bridge; but on the second idea he approves of crossing at Foxhall by a lofty bridge.

Mercurij, 17^e die Maij, 1827.

LORD GRANVILLE SOMERSET,

IN THE CHAIR.

Mr. *Charles Cummins*, called in; and Examined.Mr.
Charles Cummins.
(17 May.)

HAVE you paid particular attention to the New and Old Passage Ferries on the river Severn?—I have.

You have also gone so far as to publish on the subject?—I have.

Would you state to the Committee first of all, the difficulties which now exist as to the crossing over passengers and carriages on those two ferries; and then proceed to state any observations which you have made from personal inspection or other sources of information, with regard to either facilitating the crossing those two ferries, or in any way accelerating the passage across them?—My means of knowledge have been numerous, but not made professionally. The first and most obvious reflection that arises was, the inconvenience and total want, in my opinion, of regard to the accommodation of those whose business or pleasure might bring them to cross the river Severn; and being, by accident in some little degree of communication with the people interested in the ferry, I was in the habit of frequently expressing my surprise that some amelioration of the evils which existed was not taken into consideration by them, with respect to quays or piers at the Old Passage. I have frequently been compelled with others, to walk over a shingle and mud in dirty, dark, boisterous rainy weather, for I suppose nearly from half a mile to three quarters of a mile, before we could obtain the means of entry into the boat which was to convey us across. I need scarcely dwell on the inconvenience of spoiling clothes, being dirty and wet; and the situation of females, whom I have often witnessed in the transit of the different coaches there, exposed really to evils that were more than trivial. In compliance, I may say at length with some suggestions of mine, the renter of the ferry on the other side of the Severn, on the west side of the Severn, did exhibit some alacrity in getting stooes, and smoothing in some measure the considerable difficulties and disagreeables which existed; and of late these have been obviated to a very considerable degree, by the erection of a very good pier of considerable dimensions, from which now I am personally aware, as I crossed it yesterday, that the embarkation can be with perfect ease and safety obtained at any period of either the tide or state of wind. In the remarks to which you have done me the honour to allude that I introduced on the world, I suggested the elongation of a quay, on the east side of the Severn, called Soles Quay; and it appeared to me to be perfectly clear of itself, that the mere elongation of this Soles Quay would be adequate to every end that could be desired; and I was sorry to perceive yesterday, from personal inspection, that a very large sum of money has been thrown away on erecting a pier, the usage of which is not practicable I should suppose once in a month, and from a conviction of its utter inadequacy that the original measure which I suggested of lengthening the previously existing quay, is about to be carried into effect. Amongst the inconveniences generally experienced (which I experienced in common with all others probably), when open vessels were employed, was that of getting wet through, and which I experienced very feelingly yesterday, in being completely drenched in beating up, the wind being from the southward and eastward, rather with the ebb. This I was happy to find was likely to be obviated, by the use of a steam vessel now completed, and which I was informed yesterday was to be actually in the river to-morrow, (Friday,) and was to enter upon duty for some particular motive or other on the sixth of June next, which, as far as having cabins, would effectually screen both the passengers and their baggage from the great injury as well as disagreeable effects which they hitherto have experienced. Now these, I think, are evils enough to enumerate of the Old Passage.

Do you know at all, first of all, the draught of water of the proposed steam vessel?—Yes; the draught of water I should suppose would not be much, inasmuch as she is to be made flat bottomed, and that could never be an objection.

You can state the number of feet or inches?—I should suppose she would take the ground safely with six or eight inches of water, with the perfect safety of landing any body in her.

Mr.
Charles Cammels.
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What the Committee want to know is, what draught of water is necessary to float her across the Severn; do you mean to say the steam vessel would only draw six inches of water?—She could safely be worked with that.

In the middle of the channel?—No; the great object of the craft employed in that river I conceive to be landing and receiving with safety and ease; there is no fear of their transit when once afloat. It is their landing and receiving the cargoes.

What the Committee wish to know is, the water this steam vessel would require when in navigation, not when landing or taking on board goods?—You must immediately see that would greatly depend on the bulk and gravity of her cargo. I am not prepared to answer what her draught would be.

Now, with regard to this new pier, on which you state money to be thrown away uselessly, are you aware that pier is constructed to the whole extent that it was originally intended?—That it was originally designed, I believe it is. It is in front of the house on the east bank of the Severn.

You are not aware, in point of fact, it was stopped short from the want of money to proceed?—No; nor should I conceive it was, from the appearance of the work: it is, as far as work goes, a very well finished thing; and the only thing to be regretted is, it should be of so little use in its present situation.

The Committee is to understand, with regard to the pier on the western side, it is as good as can be required?—Decidedly so; perfectly answering every end it could be designed for.

Supposing a pier, equally well adapted for the purpose, were to be constructed on the eastern side of the Severn, that passage would be as much improved as you contemplate the possibility of?—Decidedly; inasmuch as I think it would afford certain means of transit at any period, whether ebb or flood, or any state of wind where safety could be at all guaranteed.

Have you ever been professionally engaged in subjects of this nature, in constructing piers or works of this description?—No, never professionally engaged.

Are you an engineer by profession?—No.

Are you aware of the run of the tide of the Old Passage?—Yes.

How much it runs per hour in a given time?—I do not conceive there ever was a question of the sort more difficult to answer, inasmuch as no stream depends so much on contingencies as the Severn does; with the wind strong from the southward and westward I conceive the run there is rapid to a degree not paralleled certainly in any river in the kingdom, or any I have been upon, either on the coast of France or Spain.

Have you ever made any survey of the depth of water?—Soundings.

What is the smallest depth in the line in which the boats pass?—Under what circumstances, high or low water.

Low water?—I conceive that the extreme ebb and flood, that there are points between the two piers, that would always allow of the perfect safe navigation of such a steam boat as they have constructed for the navigation. I should think that steam boat would always be perfectly safely navigable in five feet of water.

You think there is five feet of water between the two piers?—Between every point; that is to say, between the quay erected on the east side, and proposed lengthening of Soles Quay to the west. There is not a point in that line that will ever fall five feet.

You are speaking now from actual surveys?—From actual surveys.

What is the extreme run of tide under circumstances such as you contemplate?—The rate upwards or downwards.

Either way; under the most unfavourable circumstances you can contemplate?—Blowing strong with the flood, I should conceive a strong breeze from the south south-east, that the run, and you are to observe, that the run is not equal, for at the period you will have a flow of, I should think occasionally, from five to six or seven knots per hour, you will have what they call a slack water, presenting the apparent phenomenon of a current the other way.

Have you ever compared the run of the tide at the Old Passage and the New?—Yes.

What is the result of your observation on that?—I am not aware how far my answer may go, but from the first instant of my having any knowledge of the crossing the Severn at either point now alluded to, my surprise has constantly been of the usage of a transit with so formidable an object as what they call The Shoots.

You are aware that the New Passage is above the Shoots?—Yes, it is. It is above the Shoots, between the Shoots in fact, and as far as the effect may be, the efflux

Mr.
Charles Compton.
(17 May.)

efflux or reflux of the river Wye, which considerably must of itself increase both the force of flow and ebb; whereas the transit between Aust and Beachley is completely free from any effect of either of these two very powerful causes.

The river at the New Passage is about three miles in width?—Yes.

And the Old how much?—You assume both at high water.

Yes?—I should assume about half the width at the Old Passage of the New; that is conjecture.

Do you consider the sudden contraction of the river at the Old Passage has any and what effect on the run of the tide at that place?—I should consider that it would have a considerable effect were it not for the gorge of the Wye, which obviates by receiving a considerable portion of the waters sent up by the flow, which would otherwise be certainly contracted into a space that would produce serious difficulties greater than do exist.

Do you consider the contraction of the river has the same effect on that portion of the water that goes up the Severn, as on that portion which enters the Wye?—The flow of the Wye is, I believe, unprecedented for force except the Ganges.

Do you not consider the sudden contraction of the river is the cause of the great influx of water into the Wye?—Decidedly so; but at the same moment I consider with it that the Wye receives a considerable portion, by that means, of the effect that would be produced by a sudden contraction of the Severn river without such an evasion, as I may call it, of the stream.

You consider then the water has not the same force in going up the Severn as entering the Wye?—No; we are well aware to a certainty, that the run up the Severn is not so strong as the run up the Wye is.

Is not the great influx of the water into the Wye caused by the sudden contraction of the river?—Certainly.

Must it not of necessity have the same effect on the other part of the river?—Decidedly not, when there is a disposal of so considerable a portion of water by the mouth of the Wye.

There is no contraction?—Yes, there is.

Does not the river Severn considerably widen above the Old Passage?—Yes.

Will not that have some effect in increasing the current in that narrow part?—The widening the river will have no effect. The approach of the two shores must increase the rapidity of the stream, by its confining a given quantity of water within a less limit.

The width of the river above that contraction gives the water an opportunity of suddenly expanding itself; will not that increase the current at that particular point of the river?—I am aware, as a certainty, that the stream is not so rapid above Beachley as it is immediately below it; and that it is the contraction of a body of water that must increase its velocity; that the force acquired by that contraction, will more speedily be diminished by having a larger surface to disperse over, I should conceive there can be no doubt. I am aware, that on Tuesday last a steam vessel, I believe of twenty horse power, at least, made for three hours an effort to get through the Shoots, and was compelled to put back and go to Bristol.

Does not the effect of an engine of any particular horse power depend entirely upon the body which it has to impel?—If the resistance be equal, I should conceive it a matter of no consequence at all. I have seen a steam boat for three hours ineffectually struggling to get through the Shoots, and been compelled to go back to King's Road, the wider part of the Severn, the Bristol channel.

Though a steam boat may be unable to make its way through the Shoots owing to the current, that is no reason in your opinion why it should not make the passage across the Severn above the Shoots?—I think it is a very efficient reason why it would render an attempt to cross such an obstruction both hazardous as well as uncertain.

You consider a steam boat could not make its passage across above the Shoots?—Oh, yes; I am only speaking of an extraordinary event. I can speak likewise of a fact which I have witnessed. I have, on the same afternoon, passed from Beachley to Aust, and from Aust back to Beachley, and from Beachley back to Aust again, with perfect safety and quickness, when the mail coach was delayed at the other ferry until too late for the Welsh mail and Irish letters to be conveyed by the London mail of that day.

Which side of the river?—Coming from the Milford Haven side; but the same cause would have prevented their crossing from either side.

Mr.
Charles Commins.
(17 May.)

Are you aware there is a current sets over from the Welsh side to the English side of the New Passage?—No.

Is not that the case?—No.

Are, or are not the currents influenced by different banks and shoals?—Very considerably; they are considerably numerous at the line of crossing of the New Passage.

There is a company established for the formation of piers on the Old Passage?—I am not aware of any one of the members, further than the newspapers have assured me there is such a thing.

Are there not rocks and other natural causes which to a certain degree prevent the rapidity of the river Severn, which would be expected in consequence of the sudden contraction above Beachley?—I think it will be found (what my own observation has proved to me) verified by a view of the chart, that the point between Beachley and Aust is remarkably clear from such obstructions as the Committee have just alluded to.

Are there not rocks and other natural causes, such as sand banks, sometimes shifting, and sometimes permanent, above and below that particular contraction of the river Severn?—Below it, considerably.

Will not that account to a certain degree for the run of the river Severn not being so rapid when it becomes suddenly contracted, as it otherwise would?—Decidedly.

In point of fact, the river Wye is not the only cause to account for the Shoots being more rapid than the stream is between Aust and Beachley?—Decidedly not; the ground immediately below, and in the immediate vicinity of the Shoots, is the most foul and obnoxious to navigation that can possibly be presented.

Are there not rocks, and also a sand bank or two, above that part of the stream which runs between Beachley and Aust?—Decidedly so.

And is there not a very great expanse of the river above those rocks, where in running down, the tide to a certain degree wastes its force before it arrives at the narrow passage between Beachley and Aust?—The river is gradually diminishing in width from the precise situation of the Shoots to the mouth of the Wye; the Committee have spoken of the spot between the Shoots.

The Committee are talking now of above the Old Passage?—There is not more than equal to about the given width of the situation of the Shoots.

Is not the width of the river immediately above the Old Passage greater than it is higher up?—It is; it immediately widens above the point between Beachley and Aust.

Will not the sudden contraction have the same effect of accelerating the current when the tide is the other way?—The ebb.

Yes?—The force of the ebb equal to the flow.

Will not a large body of water, rushing down through the narrow part of the river at the Old Passage, have the same effect of increasing the current there of the ebb tide?—That it should not, is obvious from the fact, that the ebb never flows at the rate that the flood does at the Severn; under equal aspects, wind neutral, the flow is always more rapid and stronger than the ebb is, and with the disadvantage, that the ebb of the Wye, which is stronger in its force for its given width than the Severn, is likewise added below Beachley point to the descent and velocity of the Severn, that runs between Beachley and Aust; you have in addition the immense influx of the Wye.

In point of fact, did you ever ascertain the exact rate of the run of the tide at the Old Passage on more than one occasion, the exact rate per hour; have you exactly ascertained it from the usual modes of admeasurement?—No.

Your's is mere matter of opinion?—I feel myself perfectly satisfied that my own observations (from the repeated opportunities and length of opportunity I have had) are almost, I should presume to say, equal to having professionally made that a point of object.

As a professional person, are you competent to give an opinion of the run of the tide without admeasurement?—By no means; I would not give a professional opinion.

Would not the boatmen be more likely to give an opinion on this matter?—I should think they would be very good judges; and I should not have been surprised at the Committee's subpoenaing one of them in preference to myself.

May I ask what opportunity you have had of informing yourself of this subject?—For the last five years, crossing it occasionally four or five days a week, and being a week at a given period on one side of the shore or the other.

You

You have never been in the naval service, I suppose?—Yes, I have.

Now, with regard to the difficulty attending the crossing of the New Passage, if you will have the goodness to state your view to the Committee, take the Monmouthshire side first?—There was a period when, from having business which lay lower down in Wales, I was in the habit of crossing at the New Passage; but I may say, in one in six of my trips across the river, I was under the necessity, after waiting at Black Rock, of going through Chepstow, and availing myself of the other ferry, or I must have waited at that ferry probably till the next day.

What are the inconveniences attending the crossing the New Passage Ferry?—At low water, the particular disagreeableness of effecting embarkation at Black Rock, and the peculiar strength at the ebb, from the ebb of the Wye running close down along shore, in addition to the general ebb of the Severn, and in the flow from the almost, I may say, uncontrollable rapidity of the Shoots.

Those are the inconveniences which you say now exist?—And render it in my opinion precarious.

Now with regard to the Gloucestershire side of the passage, what are the inconveniences which there exist?—The same disagreeableness in point of embarkation, I conceive, of mud and dirt, but not to so great a degree as the Black Rock side.

As a general proposition, is it easier to pass from Gloucester to Monmouth, or Monmouth to Gloucester?—I think the point of embarkation much easier from the Bristol side of the river.

But is the passage more easily effected from the Bristol side of the river than it is from the other?—I should conceive in the same degree; because, whether they embark at the Black Rock or the Bristol side, the obstruction I have alluded to, the flow of the water above the Shoots, or its extreme rapidity of ebb by the Wye and Severn joining, would operate in the same degree.

What remedies would you propose for the inconveniences you have stated?—Why, after seeing a steam boat fail in the navigation of the Shoots, I should despair of any thing; because if you increase the force of your vessel, you would render it incapable of navigating the ferry.

What draught of water was that steam boat that failed?—I do not know precisely; a steam vessel of twenty-five horse power.

What was the name of the boat?—The Duke of Beaufort.

Does not the resistance of the water to a steam boat depend entirely, or very much depend on the draught of water of the boat?—If you allow she had more than adequate water, I do not conceive she was affected at all by a more or less draught.

Supposing the same sized engine and same power was acting on a boat drawing only four feet water, would it not be more likely to overcome any resistance of tide, than acting on one of 14 feet water?—Yes; I think, as a plain question, the resistance being diminished on the hull of the vessel, it might.

Though this vessel was unable to make the passage with a twenty horse power engine, with a forty horse power engine she would probably have been able to make the passage easily?—I think she would.

The objection you have to steam boats is, that the steam boat in question was inadequate to the service required?—I have no objection to the steam boat. I am merely saying the run of the Shoots was such as to neutralize a force so great as a twenty horse engine. I consider it with reference to any force you can employ in navigating this situation.

It has been stated to the Committee, the tide is about eight knots an hour in the Shoots?—I should think that might safely be asserted.

Are there not many steam vessels on different parts of the coasts, that are going on an average of ten knots an hour?—Yes; but not with an opposing force; that must be when the resistance is not equal.

Do you conceive, if quays were constructed on each side of the New Passage, that a greater facility would be afforded?—A greater facility might; but until you can remove the radical evils of the Shoots, and the extreme rapidity and force of the ebb of the Wye in conjunction with the Severn, I conceive the original objection would still remain.

Are you aware a steam boat did ply at the New Passage for some months?—Yes.

Did you ever see that steam boat so ply?—I did not.

You are not aware how far it overcame the difficulty of the tide you have stated?

—Not from observation; it is not for me to say any thing else.

Is point of fact, you can give no opinion as to the possibility or impossibility of having

Mr.
Charles Constant,
(17 May.)

having a steam boat so constructed as to ply across that passage?—I should be loath to offer an opinion on that.

In such a way as to overcome the difficulty?—Not at all; farther than that with the difficulties which nature has thrown in the way of it, that a vessel of sufficient force by steam, or otherwise, would require a greater draught of water than I think would be found readily in the whole transit between Mr. Church's house and Black Rock.

Would it require the same force to cross a current of that sort, as it would to stem it?—If to move in a direct line was your object, it would require a greater force to cross and arrive at a point; supposing it a straight line across a river, which a ferry should be as near as possible; the force which would simply cross a river would not be adequate to crossing that river in a straight line with a strong opposing current, either *pro* or *con*; when the stream is strong one way, and the wind opposed to it, we can make a tolerable straight passage.

Have you any other observations to offer on the subject, or any suggestion?—I am not aware how far I am at liberty to offer suggestions; if I may presume to offer my own opinion from the observations I have made within this last day; the day I had the honour to receive the summons, I made a point of immediately going down to the waterside to look at the improvements at both places, if there were any, and from what I have seen effected at Aust and at Beccly, and their steam vessels, which I saw myself at Bristol in the basin, I entertain not the slightest question, but that a safe and certain transit might always be made between Beccly and Aust by these means certainly.

And might not by improvements an almost equally certain passage be effected from the Gloucestershire to the Monmouthshire side at the New Passage?—In my opinion, most decidedly, not from the existence of these natural impediments; I state this merely as opinion.

Charles Scott Stokes, Esquire, called in; and Examined.

C. S. Stokes,
Esq.

DO you know any thing of the communication between Chippenham and the Old Passage?—Yes, I have posted it; the distance is charged twenty-seven miles, but I have been informed it is not so much.

Is that line of the road at present the best the country is capable of?—The road appears to me as good as possible as far as Chipping Sodbury, and I think for a few miles beyond it. Within two or three miles of Aust the road is narrow; and there is one short hill which would require to be lowered a little, for the improvement of the general communication.

Are you aware, that from Iron Acton to the point where the New and Old Passage roads diverge from the Bristol and Gloucester Road, the present line of the road is very circuitous?—Certainly it is.

Can you state how much might be saved by taking the road in a direct line between the points described?—I cannot speak from personal knowledge, but I believe two miles and upwards might be saved.

Can you state at all the description of country through which that new line would go?—I am not sufficiently acquainted with it.

Did you ever look at that line of road with a view to its improvement, or merely as a passenger along the road?—Simply as a passenger. I have never gone over it minutely.

Did you ever travel between the New Passage and Chippenham the way that the mail now passes?—Yes, I have.

Will you state what the distance is between the New Passage and Chippenham that way?—Thirty-eight miles.

Is that line, or the line direct from Chippenham to the Old Passage, the most hilly?—With the exception of the hill which I mentioned, the road from Chippenham to Aust appears to me to be free from hills.

Is the road between Chippenham and the New Passage through Bath and Bristol, free from hills?—There are several hills, but the road is very good.

Which is the most hilly line of the two?—Through Bath and Bristol.

Have you travelled both roads in the same way, namely post?—Certainly.

What difference of time did you find in effecting one journey and the other?—My recollection will not serve me on that point, from the journey being performed at different times, and not for the purpose of comparison. The difference of distance is eleven miles.

Do

C. S. Stokes,
Esq.

(17 May)

Do you happen to know the distance from the Old Passage to Newport, by way of Chepstow?—I believe they charge nineteen miles posting.

Do you know the distance from the New Passage to Newport?—I do not.

Can you state any thing with regard to either the New or the Old Passages?—I have crossed at both Passages, and I have examined the chart of the Severn respecting them; the distance at Beachley is only half the length of the New Passage, and at the Old Passage there are three new piers lately built; that at Beachley 486 feet in length, and those at Aust 159 and 330 feet, besides three old quays at Aust. A steam vessel has been lately built for the use of the Old Passage, which is to commence working on the 6th of June.

Do you know either the draft of water, or the amount of steam power which is to be applied to that vessel?—The steam packet draws from two feet nine to three feet.

What horse power?—The steam engine is purchased as of twelve horse power, so the best of my recollection; but I understand that its power is greater.

Can you state, by whom that steam vessel has been provided, and by whom those piers have been erected?—By an association of subscribers.

Have those subscribers had sufficient professional information to induce them to suppose that that steam vessel will have power enough to compete with any of the currents which they may meet with in crossing the river Severn?—They have consulted at different times three or four engineers, Mr. Telford, Mr. Henry Price, Mr. Armstrong, and latterly Mr. Wells.

And they have been of opinion, this steam vessel will be adequate to its intended purpose?—I consider they have acted under the advice of those gentlemen.

And it is supposed it will be able to cross the Severn, at the Old Passage, under all states of the wind and tide, whenever any vessel ought to go into the water?—No doubt is entertained upon that point; but the particular use to which a steam vessel is understood to be applicable at the Old Passage ferry is to secure a quick passage at times when there is no wind. The sailing boats can almost always make a passage at this ferry when there is wind.

Will the steam vessel be able to land and take in passengers at some one or other of the quays on either side of the Severn, under all circumstances of the tide?—At Beachley, the steam vessel will be able to take in passengers at all states of the tide; at Aust, unless the piers are somewhat lengthened, there will be various detentions of about half an hour or three quarters of an hour each, amounting altogether to about three hours, or from three to four hours in the course of the twelve.

At different periods?—At different periods, but with a further expense, which is estimated by the engineer, Mr. Armstrong, at 1,000 £; the low water pier at Aust may be so lengthened as to insure a passage, at all states of the tide, without detention of a minute; and with the use of small boats, the piers on both sides, as they stand at present, will afford a passage at every moment.

Then the Committee are to understand, that it is the failure of funds, and not of plan, which has prevented the piers being already completed to that extent?—Certainly; the two piers which now exist at Aust are formed in one line; one for the extreme of high water, and the other for low water; and being in one line, the association contemplate, as a still further extension, to unite them into one; that expense is estimated at 7,000 £.

What sum has been expended in piers at the Old Passage?—The accounts have not been completely made up, so as to ascertain exactly what proportion of the money expended is applicable to the piers, and what to the steam boat and other subjects; but in round figures, the expenditure is now from twelve to fifteen thousand pounds altogether.

In piers?—No, not in piers alone, but in improvements altogether.

That includes the steam boat?—The steam boat, alteration of roads, repair of buildings, and incidental expenses.

Can you state any thing relative to the New Passage?—I have only crossed the New Passage once, and have no particular knowledge respecting it.

Murtis, 22^e die Maij, 1827.

THE RIGHT HONORABLE SIR JOHN NEWPORT, BARONET,
IN THE CHAIR.

Mr. Henry Habberly Price, of Neath Abbey Glamorganshire, Civil Engineer, called in; and Examined.

*Mr.
H. H. Price:*

(22 May.)

YOU are acquainted with the passages over the river Severn?—I am acquainted with both the New and Old Passage.

You are aware of the obstructions that are now opposed to the regular conveyance of the mail across those passages?—I am.

Will you favor the Committee with your opinion as to the best mode of removing those obstructions which exist, and ensuring the regular passage of the mail at those points?—In the month of August 1825, I was employed by Colonel Lewis, and a number of other gentlemen who were associated, or wishing to associate themselves for the improvement of the New Passage, to make a plan and report to them my opinions as to the best means of improving the New Passage over the river Severn. I had put into my hands by that gentleman, a plan and survey by Mr. Stephenson, of Edinburgh, who had been previously employed for the same object. I began by taking a general view of the Passage, and by passing a day or two at Chistle, which is the Gloucestershire side of the Ferry; and upon looking at Mr. Stephenson's plan I observed he recommended a pier of 700 yards in length, from high water mark to low water mark. This I thought very objectionable for several reasons, and I was anxious to ascertain how far it might be practicable to bring the low water mark near to the Ferry House, by means of a navigable canal or cut; I found it would be practicable to do so, at a much smaller expense than building a pier. Part of the Gôblin Ledge, and of the space between that and the shore, consists of a hard marl, which would be easily excavated, and would be less subject to shift hereafter, than if a channel should be formed through the mud and sand. I proposed to connect that channel by a cut, with the present Chistle Pill, alongside of which I proposed to make a road 30 feet in width of stone and gravel, to be protected by a parapet wall upon the westward; I also proposed to put a pair of gates and sluices on the Chistle Pill above the landing place, so as to dam the water up inland, at high water, and let it off at low water time, to scour the channel, and keep it clear from any obstruction. After taking a cursory view of the Chistle side, I proceeded to the Black Rock side, with a view to see what improvements could be made in the landing there. I made an accurate survey of the coast adjacent to the Black Rock; I found nature had here done so much, that what remained to do would require far less expense than at any other point upon the coast.

Will you state the improvements you proposed to make?—On the Monmouthshire side of the passage I proposed to form a breakwater from the present slip to the top of St. Andrew's Rock, with a curvilinear slope to the westward, and a parapet wall to protect it from the heavy westward and southerly seas; and with a wall of masonry towards the harbour to the eastward. I proposed also to make a new cut through the cliff, from the front of the Passage-house to the top of a new pier, which pier I intended to extend in a continuous line down to the end of the Half-tide Rock.

Which do you call the Half-tide Rock?—That at which you land at present.

The rock which runs into the river?—Yes; there is 10 $\frac{1}{2}$ feet of water alongside this rock, at low water. I proposed over that to form a pavement, which at the point would be only 18 inches high; and there, for a length of 50 yards, as the expense would be so trifling, I proposed to make it 58 feet wide, which is the average width of that rock itself; to trim off the edges of the rock, and bring it to a regular form; filling up by masonry where there are indentations in the rock, thus producing a regular line.

Then

Then that is in fact a carriage way to low water?—Yes; and to land from low to high water. I proposed to make this pier at the upper part 30 feet in width at top, the height being in one place as much as 12 feet, and to form the pavement and both sides of cut stone; so that a steam boat might come on the eastern or western side of it to land near the time of high water. This varies but little from the plan of Mr. Stephenson, except that I have given larger dimension; and it has the peculiar advantage of allowing a steam boat to lie afloat at all times of tide, by drawing her back as the tide retires; thus she would be in perfect security. The length of this pier (the low water pier or landing slip) would be about 297 yards from the cliff, and the fall from the front-door of the Passage-house to the extreme point would be 19 yards, being on the average about one in fifteen. The expense of these works, I estimated, at Black Rock, would be for the pier, with protecting posts or fenders and chains, 7,011 *l.* 12 *s.* 6 *d.* and for the breakwater or pier from the Old Slip to St. Andrew's Rock, for protection at high water, 2,443 *l.* 2 *s.* I beg to state the substance of my reports made in August and September 1825, which will be explained by the plans which I here present. I reported on the 24th August 1825, to the gentlemen associating themselves for the improvement of the New Passage over the river Severn, my opinion as to the best plan to be adopted on the Gloucestershire side, as follows:—

Mr.
H. H. Prie-
(as May.)

"I have found it impossible, from the shortness of the time which has intervened, to complete the survey, take all the levels, and make the necessary borings in the bottom, so as to finish the plans, sections and estimates of the works I would recommend to be constructed."

New Passage.

"I am, however, confirmed in the opinion I expressed to Colonel Lewis, of the expediency and practicability of diverting and deepening the Chistle Pill, and constructing a causeway beside it to form a landing and place of embarkation on the Gloucestershire side."

Gloucestershire
side of the Ferry.

The opinion referred to, was contained in a previous communication to Colonel Lewis (the proprietor of the ferry) August 6th, 1825, to the following effect:—

"I would propose to excavate a channel of ample width (60 feet) for the steam boat, through the marl and flat sand stone rock, from low water up to within 350 yards of the beach near the house, of such depth as to admit of the steam boat floating up at all times of tide to that point; thereby requiring no pier to be made alongside of it. I would then deepen and widen the Chistle Pill downwards to fall into that channel, and construct along its westward side a strong retaining wall of sufficient height to afford the necessary shelter for steam boats, the top of which would form one side of a good Macadamized causeway, 30 feet wide, gradually descending from high to low water-mark, on which passengers might land at all states of tide. This causeway must be protected so far as the Shingle beach extends, either by a parapet wall or sheet piling of sufficient height to prevent the encroachment of the shingle which drives from the westward; from that point downwards to the low water channel a similar protection must be given, with a rough stone sloping pavement to the westward, to prevent the washing up of the roadway.

"It is to be remarked, that the surface of the roadway must be at a lower level than the general surface of the surrounding beach, as shown in the section, thus it will be sooner covered by water, and preserved from the lash of waves which might otherwise prove injurious.

"To secure the deepened channel from filling up, it will be necessary to make a catch-water pond of the upper or inland part of the Chistle Pill, with a pair of gates to admit small craft, and sluices for scouring; this being filled at high water time, and let off at the time of low water, will without doubt scour out any deposit the tide may have left. A breakwater will also be required on the eastward of the Pill, to secure a safe landing at high water, with a strong N. E. wind; this must extend from the bank down the mud slab 150 to 200 yards, and can be made in a sufficiently efficacious manner of timber and rough stones at a moderate expense."

The plan of these works I now present, is founded on Mr. Stephenson's survey, the expense of which I estimate at 9,552 *l.* 15 *s.*

Mr.
H. H. Price.

(on May.)

Monmouthshire
side of the Ferry.

On the 26th September 1825, I reported respecting the Black Rock, or Monmouthshire side of the Ferry (an accurate survey of which I had taken), to the following effect:—

" Having carefully examined the shore, both above and below, I can find on other spot so well adapted for the purpose of landing and embarkation; it is capable of being made a very good boat harbour at a much smaller expense than would effect the same object at any adjacent part of the coast; the bold and high ledge of rock shown on the plan, which extends into the river at a right angle from the shore about 350 yards, and the Charstone Rock a little farther out on the eastward, with the Lady, Beach and St. Andrew's Rock to the westward of the landing place, form so many natural breakwaters, and produce such invaluable eddies, that I can scarcely conceive a spot better adapted by nature for a ferry boat harbour. Although a considerable expense has been incurred at various times, in the construction of landing quays, yet from the want of a general plan on a more enlarged scale, the accommodation which these quays afford is very defective; while they produce for the boats used in conveying passengers over, no shelter whatever from the severe southerly and westerly gales, and the consequent heavy sea with which this part of the coast is frequently visited. In its present state I have no hesitation in saying, it would be extremely dangerous to attempt the running a steam boat during the winter gales, to this point; at high water spring-tides she would be entirely unprotected, and in great danger of being broken to pieces.

" This side of the New Passage is, from its more sheltered position, best adapted for mooring a steam packet during the night, because, when the improvements I suggest are made, she may lie afloat even during gales of wind in perfect security, at all times of tide, immediately near the house.

" It appears to me to be necessary, that a good pier or causeway of cut stone be constructed from the cliff, above high water mark, extending in a continuous line to the extreme point of the low water rock, a length of 297 yards, as shown on the plan and section, alongside of which, at the point, there is at all times of tide ample depth of water for a steam boat to lie afloat. At the lower end, this flat rock will only require a pavement of about 18 inches high, with face walls; and as the comparative expense will be so small, I propose that its width for the lower 50 yards shall be 58 feet, that being the width of the rock; this will give ample room for several carriages to stand at the same time, and for the mail-coach to turn round the upper part of the pier (which will be at one point 12 feet high, and close to the cliff 6 feet high) being much more expensive, I propose to be only 30 feet wide on the top, defended on each side by strong posts, or fenders and chains; the outer walls of this pier, and the pavement, to be formed of good dressed ashlar stone, set in best Atherthaw lime mortar, properly prepared. The face, or outer edge of the flat rock, on which great part of the pier is to be founded, must be trimmed off, and the rock which protrudes in several places from the bottom of the harbour alongside, blasted off to a sufficient depth, and the fragments removed, all of which will come in very usefully for backing.

" A new road or approach must be cut through the cliff, at a regular descent from the door of the Passage House to the top of the pier, the whole of which is more particularly shown by the plan and sections accompanying this Report; the total cost of this improvement I estimate at 7,011 £. 12s. 6d.

" Besides the pier it is necessary to construct a breakwater, as shown on the plan, from the shore to the summit of St. Andrew's Rock, with a landing place or quay, 20 feet wide, and parapet wall seven feet high on one side (facing the harbour), the length being 70 yards on top; this will effectually defend it from the great westerly swell, and render it a safe and commodious harbour. The western side of this breakwater should be formed on the principle adopted at the Plymouth breakwater and other similar works, with a considerably sloped pavement of large blocks of stone, facing towards the sea, as particularly set forth in the accompanying plan and section.

" There is abundance of good stone in large detached masses well suited for the purpose, lying on St. Andrew's Rock and Charstone, as well as under the cliff,

cliff, which will considerably lessen the expense; the total cost of which I estimate at 2,443*l.* 2*s.*

Mr.
H. H. Pries.

(25 May.)

"During the progress of my investigation I have often had occasion to remark the difficulties with which the passage boats have to contend at particular states of the tide, and with adverse winds, in making their passage; and must own, I fear, none but a steam boat of considerable power will be able to contend successfully with these difficulties. I do not, however, perceive any thing insurmountable to them.

"That the general time of crossing must be greater than at the Old Passage there can be no doubt; it has therefore occurred to me, and the idea has been much strengthened by a communication I have lately had with Mr. Telford, that it would be greatly for the mutual advantage of the Old and New Passage Association, that they should be united in one concern; and that one line of steam boats only should be employed to carry over the whole of the passengers, which would otherwise be divided between the two passages.

"Having examined the country between Crick (on the road from Newport to Chepstow), on the mouth of the Wye, I find it perfectly practicable to make an excellent road, which crossing the Wye near its mouth, either by means of a bridge of suspension or a flying bridge, will bring the Old Passage at Beachley but a short distance farther from Newport than the New Passage now is; and Mr. Telford informed me he had some time since caused a survey to be made, by which it appears a good road may be made from the north end of Bristol to the Old Passage, avoiding most of the hills and considerably reducing the distance. When we consider the advantage the London traveller would possess, crossing the Severn at the Old instead of the New Passage, of going direct through Chippenham, avoiding Bristol and Bath, thus saving 13 miles of distance, as well as the shortened and more expeditious ferry voyage, there will appear, I think, sufficient inducement to warrant my recommending such a measure to your serious attention in the strongest manner."

In consequence of that recommendation of mine, I received instructions to proceed no further with my survey at the New Passage, but to turn my attention to the improvements I had suggested of a new road from the Old Passage, crossing the mouth of the Wye; and a surveyor was employed at Monmouth, who made a plan of the road.

What distance do you call it from Beachley to Crick by the proposed suspension bridge?—The distance was measured by Mr. Davis, with a view to an application to Parliament, and the different enclosures I have here stated. I make it four miles, three furlongs, five chains, and ninety-five links from Crick to Beachley, including the distance across the river Wye, as measured by Mr. Davis, of Tintern.

What is the distance going round to Chepstow?—I cannot state of my own knowledge.

What is the distance from Crick to the New Passage?—That I do not know myself; they were measured by Mr. William Davis.

Have you the result of the measurement?—No, I have not.

With regard to the suspension bridge; have you any knowledge of the expense of that bridge?—I have made no estimate of that; but I understand from a calculation that has been made of a similar bridge across the mouth of the Neath river, which is about the same distance, that it would be from 20,000*l.* to 25,000*l.*

Are you aware of the height the tide rises at the place where the suspension bridge is proposed to be erected?—I am not, accurately; but I should think about forty-five feet.

Have you then calculated for a height to allow boats to pass at the highest point of the tide?—Yes.

What is the greatest height you have allowed for the suspension bridge to rise?—I have not made any plan, but I should think the plan which Mr. Nimmo has proposed for a suspension bridge in Ireland, is the best.

That is, to have a drawbridge?—Yes.

In point of fact, the navigation would be impeded by a suspension bridge?—Unless it was of sufficient height, or there was a drawbridge.

Are

Mr.
H. H. Price.

(21 May.)

Are you aware of the currents at the mouth of the Wye?—I have never taken notes of their rate.

With regard to this pier at the Black Rock; it is rather an ornamental work; it would be if it was completed according to your plan?—It would be done in the most substantial way possible.

Suppose it was not done with hewn stone and smooth masonry, would not the expense be materially diminished?—Undoubtedly.

I want to know whether the same plan with different materials, would not be equally useful?—It would, as long as it lasts.

I want to know what difference that would make in the expense?—I have not made a calculation.

Does it not make a material difference whether it is hewn stone or rough stone?—Certainly.

What difference would it make, suppose it was done in the plainest manner to resist the elements?—I think it might be done at half the expense.

With the same dimensions, or with diminished dimensions?—I am very doubtful whether it could be done to last, it must be done in cut stone.

Supposing that work was done in the cheapest manner, but at the same time in a substantial manner, with no regard to the appearance, but with great regard to its stability; what would be the expense with the same dimensions?—I am not prepared to say.

Would it make a difference of one-half, or one-seventh, or what?—I should say, in round numbers, possibly it would reduce a third of the expense.

Do you conceive the dimensions you took were absolutely necessary, or they might be diminished so as not to impede the utility of the work?—I think a pier, which would give all the facilities the present landing gives, or the present trade requires, might be made of much less dimensions.

Then, that would reduce the expense again?—Certainly.

Your estimate was about 7,000*l.*; then, in point of fact, reducing the dimensions, and reducing the ornamental parts of the work, and leaving those which would be useful, about 3,500*l.* would be the expense?—I think a pier could be made which would answer every purpose for travellers, at that expense.

That would answer every purpose of loading and unloading passengers and goods at a low state of the tide?—Yes; but it would not be so durable as if it were made of cut stone.

What difference do you think it would make in the durability, if it was not made with cut stone?—It is impossible to say, as it depends upon gales of wind; if a storm were to come on, it might upset the whole work.

Do you think the advantages are so great, that it would be worth while to do it with cut stone?—I should say, I would make it of cut stone, were it my own concern.

Then, would you recommend the cut stone, or the rough stone, considering the cheapness of the one, and the durability of the other?—I should recommend the cut stone.

You estimate the breakwater at 2,000*l.* odd?—Yes.

What is the absolute necessity of that breakwater?—The object is to protect vessels coming along side; it is to give them a safer landing near the time of high water, when the wind and tide set together from the westward.

Did not you say, your project went to allow vessels to lie on one side of the protecting pier, or the other, as the case might be?—That depends upon the state of the tide, because when there is a flood tide, it is necessary, in order to secure a passage over, to let them lie down as low as they possibly can to the westward of my proposed pier. In order to get to the eastward of the proposed pier, (supposing the protecting breakwater not to be made,) with the wind and tide both setting together strongly from the westward, they would have to pass the rapid current which runs between Charstone and the Goblin ledge.

Then, they would go to the eastward of the pier?—They might get to the eastward, but they would not be able to get back again; they must wait for the tide to turn before they could make another passage.

Suppose

M.
H. H. Prier,
(22 May.)

Suppose it was a steam vessel?—A steam vessel could not stem a strong wind and tide.

I would ask you, do you conceive, except at the pier head when the tide is up, that this breakwater would be of any use; would it be of any use on the ebb tide?—It would be decidedly necessary to have a landing on the ebb tide; and on my plan, I do not propose to have any landing on the westward of the breakwater; it would be a sloped pavement of rough blocks of stone; and a pier would be absolutely necessary, unless there was a cut stone facing to the westward side of the breakwater.

I want to know whether the breakwater would be of any use at any period of the ebb tide?—I conceive upon the flood tide it would be of the greatest use.

At what period of the flood tide would it be of any use?—It would be of use so far as this; supposing the steam boats were to come to the westward of the pier at or near the time of high water, and the wind was blowing strongly from the westward meeting the tide, there would be a tremendous swell, and it would be absolutely necessary to have a protection, supposing the steam boat were to come to the pier.

Then you conceive the breakwater is necessary to take in passengers and goods at the pier in certain states of the tide, and the pier would be useless without the breakwater?—Certainly.

With regard to the Chistle Pill, you stated you had no knowledge?—I bored the bottom; I did not take an actual survey of it; I only took the survey of Mr. Stephenson, and put down upon that plan certain suggestions.

With those provisos, what do you consider the expense of the alterations would be at Chistle Pill; that is, the cuts you propose instead of the pier?—I did not deliver any estimate of it, because I did not consider I had any data to go upon; I only made an estimate for my own satisfaction; I estimated the total of the works I suggested would amount to 9,552 £ 15s.

With these projected improvements do you conceive a steam boat would at all times of the tide effect its landing?—No.

At what periods of the tide, and what directions of the wind, would it not be able to effect a landing?—I conceive with an ebb tide, during the springs, after the English Stones are up, with the wind from the eastward blowing strong, that scarcely any steam-boat that could be made, would be able to effect the passage from Black Rock to Chistle.

Supposing it has effected its passage, how would you effect its landing?—The landing would be very easy in a still-water channel, such as I propose; see the Plan.

The project is, that this pier should be able to receive a steam boat in all states of the tides?—Yes.

Then the only difficulty you contemplate is the passage, not the landing?—The passage is what I contemplate as the greatest difficulty.

Do not you think a steam boat would make the passage across the Severn under all circumstances of wind and tide, when a sailing vessel would not be able to do it?—A steam boat would certainly make it when a sailing vessel would not do it; but I have been in a steam boat at sea with a gale of wind against us, and it was a powerful steam boat, and we have not been able to make a knot an hour a-head.

The question is, whether you think a steam boat would make the passage against any circumstances of wind and tide, sooner than a sailing vessel?—Certainly, better than a sailing vessel.

Do not you think a steam vessel would avail herself of the eddy in the river, in making the passage with a strong wind and an ebb tide, such as you have described, in getting to a certain length on the Monmouthshire shore, so as to complete her passage?—She would, up to a certain point; but let her make her passage up shore opposite to the mouth of the Wye, she could not cross the river without getting upon the Dun Sands.

Could not she make her way above the Dun Sands?—That is the way they are often obliged to go now.

I think you said that is near low water?—Yes, and an ebb tide.

What would be the expense of carrying the proposed improvements into effect?—I have stated that 22,000 £. would effect all these objects, including the steam-boat.

What do you conceive would be the smallest sum for which the necessary improvements

Mr.
H. H. Price.

(22 May.)

improvements could be effected on the reduced scale, which has been adverted to in a former part of your examination?—I have estimated the whole at 22,000*l.* and I stated you might possibly take off 3,500*l.* on the Welsh side, which would leave 18,500*l.*

Has any proposition been discussed, as to the means of providing for the expense of these improvements, upon either one scale or the other?—From a statement which was given to me by the agent of Mr. Lewis of St. Pierre, the proprietor of the ferry, it appeared, that on an average of twelve years, from 1810 to 1822, the annual average gross receipts had been 1,582*l.* 8*s.* 4*d.* and the disbursements were estimated at 725*l.*; leaving a net annual income of 757*l.* 8*s.* 4*d.*

Can you bring it lower than 1822?—I should state, that in these later years the amount has been gradually decreasing; and in that part of the income which arises from cattle only, it has been increasing. I have another average which comes down to 1825. The average net amount received by Mr. Lewis, for the last ten years, up to 1825, including the ferry, two houses, and forty acres of land, had been 800*l.* 16*s.* That was his receipt, subject to a deduction for the repair of the houses, and landings for the boats. It had been diminished during the last two years, and if averaged for five years, it would amount to 743*l.* 2*s.* only. We estimated that the repairs would amount to 103*l.* 2*s.* leaving the net rent of 640*l.* per annum. I was requested at that time to make an estimate of what I thought would be the total expense of the steam boat establishment.

How was that expenditure to be met?—It was estimated, that if these improvements were made, we should have a return of 7*l.* 9*s.* per day for passengers, besides cattle, sheep and pigs.

What was the annual income that you expected from all these different sources, including cattle, sheep and pigs; supposing these improvements were effected?—We expected an annual income, from the carriage of passengers, cattle and carriages of different descriptions, of 3,036*l.* 16*s.* and for carrying His Majesty's mail across 100*l.* besides, which is paid at present, I understand.

Then am I to understand you calculated, that the amount of annual product, after the improvements were effected, would be considerably greater than the present product?—A little more than double.

These are the gross receipts?—Yes. We expected also the annual income of the houses and land; the rent would be 306*l.* 16*s.* The total receipts, on this calculation, in case the improvements were effected, would be about 3,443*l.* 4*s.*; which is rather more than double the average of the present gross receipts.

What would be the annual expenses of the improvements?—The expenses, including the expense of a sinking fund, we calculated at 1,193*l.* 3*s.* 2*d.* upon one steam boat.

Does that include the expense of some sailing boats with the steam boats?—We have not calculated for having any extra men in the sailing boats, but we calculate that we should have boats to tow over the cattle in.

There is no necessity for any sailing boats?—No; we calculated that small boats to carry cattle would be an advantage. It would be an inconvenience to the passengers to be stowed with cattle, and the cattle might wait for the fair tide to be towed over.

In certain states of the tide and wind, would not a sailing boat make the passage as well as a steam boat?—Certainly. We calculated on having a captain and three seamen, an engineer, and a boy, which would man the boat perfectly well, in case of need.

Then you only calculate for six men?—No more.

How many are there at present?—I believe there were fourteen, but they have reduced the number. Besides the expenses of the ferry, as stated, we calculated the rent of land and houses, and the right of the ferry, would be about 640*l.* per annum; so that we expected a net return of 1,500*l.* a year for the interest of our money, which would be rather more than seven per cent.

How long is it since that discussion took place?—This calculation I submitted on the 26th of August 1825, to the gentlemen associated.

How came it, from that time to this, a project which appeared to hold out a prospect of affording ample interest for the money, was not carried into effect?—There was a great change in the money market at that time, and I dare say there was an apprehension, that although the project held out prospects of 7 per cent, the traffic would not be sufficiently increased to afford that income. There was, also

also about the same time, improvements going forward at the Old Passage, which it was supposed, might clash with the New in some manner, in so far as when passengers were going from Chepstow to Monmouth, they would prefer going by the Old Passage, and when the improvements should be completed at the Old, the passengers would be less at the New.

I think you have surveyed the Old Passage accurately?—I have.

Will you have the goodness to state to the Committee the observations you have made at the Old Passage on your survey, made as it was, with reference to the improvements which have been recently made?—This is the survey of the Old Passage, which I made myself, upon which all the rocks are more accurately laid down, than I found them on Thomas's Chart, or any other chart, as they are of great importance to the Ferry. [*Witness produced the plan.*] It was in the beginning of the year 1826, that I was called upon to survey and give plans for the improvement of the Old Passage Ferry. I found the landing places made on the Beachley and the Aust sides of the Old Passage Ferry, were extremely inconvenient, as it was almost impossible to get to them from the high water mark, without getting over one's shoes in mud; I found also that, for a very large portion of the day, there was no suitable place for landing at all, and therefore the boats were obliged to wait; though they could cross frequently from one side to another, they were obliged to wait till other piers got above water, that they might land upon those piers. At the Aust side, about high water time, they were obliged to land 500 or 600 yards above the Ferry House, under the cliff, and to make the best of the way they could, sometimes in very bad weather; and at low water time, landing at Aust, they were subject to very great inconvenience in going over a very bad road, which had been made over the mud of Brushwood, covered with rough stones, and this frequently covered with mud also. At Beachley side, there was only one small pier for landing at half tide. The passengers were frequently obliged to embark at low water time, sometimes under the Passage House and sometimes down at the Chapel Rock, further to the westward, without any good road whatever, from high to low water mark. I therefore at Beachley turned my attention in the first place, to find the best point for forming a causeway or pier from high to low water mark, alongside of which a steam boat might be brought at all states of tide to land passengers and carriages upon a dry stone pavement; and assisted by the opinion of Mr. Telford, a spot was fixed upon whereupon a pier has since been built of 30 feet in width at top, from high to low water mark.

On which side is that?—That is on the Beachley side. It extends about 160 yards down to some rocks, which are called The Flat Rocks, which are exposed at low water time; and from the end of that pier out into the deep channel, I proposed to cut away part of the Flat Rock to enable the steam boat to be brought in at dead low water time on the eastward of the pier. That pier has been completed to the Flat Rock, and is now quite ready for the steam boats to ply.

Is the excavation of the rock also completed?—The excavation of the rock is not quite completed, for the water only leaves it for a very short time; sometimes only a quarter of an hour at low water, and it is necessarily a slow operation; but it is in progress, and will be completed in a few months probably; but the inconvenience is at present very trifling; and it is found, from the water rushing continually over the surface of this pier, that no deposit of mud takes place except at very still water time, which is washed off by the next tide. On the Aust side, I submitted two plans, one of which was to make a catch water pond or pill, with a communication into the Aust Pill, which drains the water from the low lands; to bring it parallel to the road, close up to the ferry-house, and there to make proper sluices, so that at high water time, that pill or channel should be filled with water and dammed up by the sluice gates; and to cut a pill from that point near the ferry-house, of about eight or nine feet deep down to low water mark; to build a rough stone or retaining wall of common masonry on the westward side of it; and from the top of that, to make a stone road way, not pitched but M'Adamized, to be protected by a parapet or mound of stone to the westward. That plan was not approved of by the Committee, and I was ordered to prepare another, which has since been carried into effect. The second plan was, to construct a pier from high to low water mark at Aust, similar to that at Beachley; but the funds not being adequate to build the whole, it was deemed necessary at first, only to make a high water pier about eighty yards in length, and a low water pier, in the same line of direction, of about sixty yards in length, with a road way tapering off, of about sixty yards more, to catch the high ground.

Mr.
H. H. Prier.

(21 May.)

So that if the funds are extended, the two piers may be united?—Certainly, similar to that at Beachley.

Then when these two piers on the Aust side shall have been completed, and the excavation on the Beachley side shall have been completed, do you conceive a steam boat of adequate force to stem the current, would be able to take in and let out passengers in all the ordinary states of tide and wind?—I conceive a steam boat such as is being constructed, will be able to take them across in all states of the tide, so far as the tide is concerned; and I conceive there will be never any difficulty unless there may be a gale of wind.

And they will be able to take and let out passengers at one or other of these piers, as the case may be?—Yes; I should also state, since this pier has been constructed, the Committee have determined to extend the low water pier further out by means of common piling and wood work, and extend it further up towards the land fifty or sixty yards, to give still greater convenience.

With regard to the description of work of which this is made, it is of the best cut stone or of rough stone?—It is of the best cut stone work.

Done in the best manner?—Yes.

Do you know whether the currents at the Old Passage are so difficult to deal with as at the New?—I think they are not by any means so difficult.

Can you state the expense of these improvements, for those which have been executed, and those which have been contemplated?—I understand altogether, they calculate, including the steam boat, that they will have expended 15,000 *l.* or 17,000 *l.* when the accounts are made up.

Can you state what draught of water this steam boat draws?—About three feet four inches of water afloat.

Are the improvements constructed upon the calculation that she draws three feet four inches water?—It is calculated that she draws three feet at the bows and three feet four inches aft; so that when she comes in by the piers she does not exceed the calculated draft.

With all these improvements, do you think the Old Passage a good ferry, or a bad ferry?—I think it a good ferry; and if the improvements were completed on the Aust side, it would be as good a ferry as could be desired, and far better than any other on the river Severn.

Do you know that the stage coach which used to run across the New Passage, has been transferred to the Old?—I know the Cambrian, a coach which used to run alternately by the New and the Old Passage, has been transferred to the Old Passage altogether.

The country is very hilly between Beachley and Chepstow?—Yes.

There are serious hills between Chepstow and the Old Passage?—Yes.

Do you know of any communication between the Old Passage and Chippenham?—I only know from hearsay; I have a map of them in the room.

How long will it take to cross at the Old Passage in a steam boat?—I calculate the average passage from Beachley to Aust, and from Aust to Beachley, when the steam boat is there, will not exceed twelve minutes; and under no circumstances will passengers be liable to detention, except during a gale of wind.

But are there not times of the tide when you can cross at the New Passage and not at the Old?—I am not aware of any such.

Are there any times when you can cross at the Old Passage and you cannot cross at the New?—There are times when you can cross at the Old and not at the New.

Mr. Alexander Nimmo, Civil Engineer; again called in, and Examined.

Mr.
A. Nimmo.

(21 May.)

HAVE you any thing to add to your former examination?—I have brought the sketches to which I referred in my former examination, and I have cast up what it could be done for, upon the most moderate terms; and I think you could make a very sufficient pier on the Monmouth side for 3,000 *l.* On the opposite side you could make a pier and construct a gravel road on the side of it, for 2,000 *l.* I have been calculating the expense of making a bridge across the rocks, so as to get into deep water at low water, but the expense is so great that the idea is not worthy of entertaining.

You say a sufficient pier, that is, a sufficient pier for the purpose you refer to in your former evidence?—Yes.

Martis, 29^e die Maij, 1827.

Captain George Lloyd, R. N. called in; and Examined.

HAVE you been long acquainted with Milford Haven?—For some years.

Are you at all acquainted with the navigation of the harbour?—Yes; I have been in the habit of keeping a small yacht upon the Haven for the last eight years.

Captain
George Lloyd, R.N.
(29 May.)

Can you give the Committee any information as to the facility or difficulty of navigation between the present station at Milford and the dock-yard?—I should think the difficulty is very little indeed, scarcely worth mentioning.

Do you think there is any difficulty in navigating in dark nights and blowing weather, between those two points?—Only one difficulty, the Carr Rocks which lie between.

Between Milford Town and the dock-yard?—Yes; I should think that that difficulty could be easily obviated by a light being sent off there in a boat, if the packet was beyond her time.

Being moored there?—Yes, for the time; not absolutely necessary that the light should be always there; I believe the packet three days out of four is in by day light.

But in the event of making the alterations proposed, with respect to the intercourse by the packet establishment, a considerable portion of the year, probably, the navigation would be performed before day light; in that event do you consider there would be any danger to the packet?—Not the least; I should not have the least difficulty in running up a packet at any time when it was possible to see, either during the day or the night; in the navigation of a steam vessel it is necessary to see a certain distance, say 100 yards, as you come so quickly upon objects there, you might run them down.

The Committee are speaking of steam packets?—Yes; I am alluding to them.

You do not think there would be any danger in navigating steam vessels between those two points?—Not the least whatever.

Do you know whether the captains have at any time been in the habit of carrying the vessels up there in blowing weather?—Not steam vessels; but during the time the captains found their own vessels, they never found any difficulty in getting up there, night or day; but the captains of the packets are not the most competent persons to give evidence on the subject, for it was not then the captains who took up their vessel. The captains generally land with the mail, and the mate brings up the vessel in case of need. I have been in a great many harbours during my service, and I never was in any one so free from danger as this, and so easy to navigate up and down. I should conceive that there would be no more difficulty in bringing a steam packet up to the dock-yard than a four-masted boat.

Are you acquainted with the line of road between the dock-yard and the great line of road to St. Clears?—I have never seen the plan of the new road; but the line in which the road is intended to go I have hunted over, and I can speak to it. The present turnpike road, from Pembroke to Coldblow, is as good in itself as any road I ever saw.

It has been proposed to carry a new line of road from the dock-yard to St. Clears, not to join at Coldblow, but beyond Tavernspoint; do you know that district of country?—Merely from hunting over it.

Can you give the Committee any information as to the facility of making a road tolerably level through that district?—There is a line of country there, through which a road might be brought from St. Clears; it would have a gentle rise, which you might trot up the whole of the way.

With respect to the erection of a pier; can you give the Committee any information as to the eligibility of either side of Hobb's Point for that purpose?—I should say, that that was one of the most eligible situations for a landing place in the harbour; but as to a pier, I think it would be a bad thing to be erected there.

Do you think that a landing place to take in passengers, horses and carriages, could be constructed there for a small expense?—I think so; and I think it is a very desirable situation, because fifty feet from low water mark you get from ten into eleven feet water; there is one great advantage, that a steam packet lying to the eastward of Hobb's point would lay in slack water, the tide making nine hours out of the twelve one way, and not exceeding half a mile an hour.

Captain
George Lloyd, R.N.
(93 May.)

As far as you have had an opportunity of forming an opinion, do you consider that the necessary accommodation might be afforded at Hobb's Point with less expense than at any other part of the harbour?—Undoubtedly, because it is the deepest part.

And if run out there, in your opinion would it occasion any inconvenience to the oavigation of the dock-yard above it?—Not the least.

Do you conceive that at any of the places below that point the necessary accommodation could be afforded, by running out a pier, without creating an impediment to the navigation of line of battle ships, and to the ships built at the dock-yard?—I should say, that it would be attended with inconvenience to the navigation; because directly you run out a pier, you create a back water, which will cause a deposit.

Can you give the Committee any information as to what your judgment would be of the probable cost of the accommodation that would be necessary?—I have understood it would not cost more than four thousand pounds or five thousand pounds, to construct a sort of a landing place sufficient for a steam packet when she came in to lie alongside.

And according to your idea, the rest of the steam packets might lie at their moorings?—Yes, I think, to the eastward of Hobb's point.

Mr. Benjamin Wingrove, called in; and Examined.

Mr.
B. Wingrove.

WHAT are you?—General Surveyor of Roads.

Are you acquainted with the line of Road between London and Bristol?—I am.

Give your opinion whether a shorter line could be adopted between London and Bristol?—I think a very considerable reduction might be made in the distance. In the first place, the road is too far to the northward by going to Maidenhead. The distance might be lessened by going to Windsor. Between Berkhampton, Bath and Bristol, a very considerable reduction may be made on both the Chippenham and the Devizes lines of road. A very eligible line was laid down last year by Mr. Telford, on the Devizes line; and between Berkhampton and Bristol, by taking the road to Calne and Chippenham, and thence to Marshfield, the distance would be lessened several miles. It may be also mentioned, that there appears, as far as can be ascertained by maps, without a survey, that a very considerable reduction might be made by going to the southward of the hills between Devizes and Hungerford; that line has been stated, but the facts cannot be precisely ascertained without a regular survey from London to Bristol.

What is the whole distance that can be saved?—I should think, between London and Bristol, by avoiding Maidenhead and Bath, a distance of upwards of eight miles.

Where would you diverge from the present road?—A road exists already from Chippenham to Bristol, by Marshfield.

It is a very hilly road, is it not?—Yes, but the descents from the hills are or might be made much easier than to Bath; but the road from Chippenham to Bath might be improved, as well as from Devizes to Bath.

What would be the saving of going through Windsor, instead of Maidenhead?—I should think two or three miles might be saved.

What considerable towns would you leave out by your proposed line?—I should leave Maidenhead and take Windsor, leaving a smaller town and taking a larger one. As to Bath, it would not be affected in the least, because there would be still a regular line of communication with the west.

You have stated, that there would be a saving of seven or eight miles by leaving out Bath?—From that to ten miles, by leaving Maidenhead and Bath.

Would that distance be saved between Chippenham and Bristol, or on the whole line of road?—I think more than five miles would be saved between Chippenham and Bristol.

And how much between Chippenham and London?—I should think two or three miles.

Have you ever taken such a survey of the country between London and Bristol, as will enable you to speak with any degree of accuracy as to the actual distance that would be saved?—Between Chippenham and Bristol there can be no doubt of the saving of five or six miles.

And how much between London and Chippenham?—I think by looking over different maps, and carefully measuring the ground, two or three miles.

By

Mr.
B. Wingrove.

(19 May.)

By leaving out Maidenhead, you would be compensated by taking in Windsor?—
Yes.

But nothing to compensate for leaving out Bath?—No; you may improve the descent of the hill very much between Chippenham and Bristol; I think there is a *revue* by which the descent into the Gloucestershire vale would be much easier than by the present hill.

How much new road would be required between Chippenham and Bristol, to carry your proposed improvement into effect?—I am not prepared to say exactly, but I feel authorized to observe, that the Commissioners of the Chippenham and Calne roads, as well as the Commissioners on the Melksham and the Devizes road, are all desirous of perfecting and improving their roads in the best way that they can possibly be set out.

Do you mean out of their own funds?—Out of their own funds as far as their funds will enable them; I know that on the Chippenham line they have a considerable surplus revenue, and they are desirous to appropriate it to the improvement of the road.

Have they sufficient funds of their own to effect the improvement you have suggested?—No, I do not mean to say so, but they have a surplus income which they would be willing to lay out on any improvement.

In the event that this improvement you have suggested were to be carried into effect, and government were disposed to advance a certain sum by way of loan, do you conceive there would be sufficient to pay off the principal and interest of such loan in a reasonable number of years?—It might be done where there is a surplus income, without any increase of taxation; but upon those trusts where there is no surplus income, it is a matter of doubt whether the improvement could be effected, and the money advanced by government, be paid off without some additional toll.

But in this case there is no new road contemplated by going through Windsor?—In one place there must be.

Under any circumstances, should you not consider, in order to form an accurate idea of the quantity of the ground to be saved, and the expense likely to be incurred, that such inquiry should be prefaced by a regular survey?—I certainly do conceive a survey to be essential.

Is your proposed line to go between Marshfield and Bristol?—Yes.

How far would you go along the existing road towards Marshfield?—It would vary according to the activities presented by the present line of road; in several places considerable improvements might be made on the present line, and then where necessary to deviate.

Where is the first point at which you would deviate?—Between Marshfield and Bristol.

You contemplate that the present line of road from Marshfield to Chippenham, should remain the same?—With small alterations.

Do you know what is the state of the road just now?—Yes; it is in tolerable good condition.

Are not some parts of it very narrow?—Some parts of it are narrow.

How do you propose to get down the hill just before you come to Marshfield?—You must deviate, but I am not prepared exactly to say to what extent, because I have never surveyed it with a view to make that alteration, but merely as a passenger in going from Marshfield to Chippenham; therefore I should not like to state the point.

You never looked at it with a view to answer that question?—No.

There is a steep hill there, is there not?—It is steep, certainly, but it is a short one.

But more steep than any that now exists between Bristol and Bath?—No, not the hill between Marshfield and Chippenham; between Marshfield and Bristol there is Tug Hill, or Tog Hill; that hill is steeper than the present hill on the Chippenham and Bath line of road.

How do you propose to overcome that difficulty?—By deviating to the northward, and going nearer to Dirham.

You conceive, that by that deviation you would make that hill as good as any between Chippenham and Bath, and Bath and Bristol?—More so than between Chippenham and Bath.

What is the contemplated saving of the distance between Chippenham and Bristol, by that proposed deviation?—I am not enabled to say, that there would be any saving

Mr.
B. Wingrove.
(29 May.)

saving in point of distance in the present line of road; but merely as to the hill, it would be five or six miles nearer on the whole, than by Bath.

In point of fact then by the proposed alteration, you contemplate the possibility of shortening the distance three quarters of an hour, between Chippenham and Bristol, than that which now exists?—I do.

Do you know the hill going down into Marlborough?—Yes.

In Tug Hill as steep as that?—I should think about the same acclivity.

Is it as long a hill as that?—I think rather longer.

Whereabouts would be the extent of the new road to avoid Maidenhead and to pass through Windsor?—I am not perfectly acquainted with any of the roads between Reading and Windsor, I only know them from the examination of the surveys.

Is there not a road now which goes through the forest?—There is; but it goes too far to the southward.

Is it from those surveys to which you have alluded, that you have taken your ideas of the distance that would be saved?—Yes, certainly.

Are those surveys any thing else but the ordinary maps?—No, none others but the maps that have been published; Cary's maps and others.

Have you a local knowledge of the country?—From riding through it, and from observations that I have made of the present line of road being so crooked.

Do you know whether there is any hilly country to pass through?—I am not prepared to say.

Have you the superintendence of the roads about Bath now?—No, I have not.

How long is it since you had?—I resigned the management of those roads about a twelvemonth ago.

You give it as your opinion, that it would be very desirable to obtain a perfect and complete survey between the whole line of country, between London and Bristol, and London and Bath?—Yes; for both Bristol and Bath, because it may be found that a line equally more advantageous to Bath may be discovered on the south side of the Marlborough hills by which a great saving would be made, therefore a survey would be the only means of ascertaining the fact.

Do you know enough of the roads in this part of the country as to be enabled to say, whether even supposing that no new line of road were to be formed or no, great alteration could be effected; there are still many points that might be effected with advantage?—Certainly.

Is it your opinion, if a survey was made, those alterations might be effected more advantageously than if left merely to the conception of different local surveyors on the spot?—I should think the only mode by which the public could be put into possession of the best line, would be by a general survey; there being so many trusts concerned, and so many different interests, it is almost impossible to fix on any line that would be for the general good, that would not interfere with some of those local interests.

Have you examined a good deal into the state of the finances of the different trusts?—I have.

Is it your opinion, that an advantage would be derived to the public from a consolidation of all the trusts from Newbury to Bath and Newbury to Bristol?—I am decidedly of opinion that the greatest advantage would result from it.

In what respect?—The revenues would be applied for more general purposes than they possibly can be by their distinct applications under the existing division of trusts.

In contemplating these improvements, do you intend to leave out any of the great towns through which the mail at present passes; or do you mean it should take the same line but only by different roads?—By no means to leave out the great towns, excepting changing Maidenhead for Windsor.

There are two mails that travel that road to Chippenham?—Two mails to Bath, one takes the Devizes road and the other takes the Chippenham road; the Bath mail now takes the Chippenham road; the Devonshire or western mail takes the Devizes road.

So that Maidenhead would be supplied by the Bath mail as at present?—I suppose so.

Is it in your view to form a new road in reference to the New or Old Passage across the Severn?—I have never surveyed it with that view, and it is impossible to speak of such a line so intersected with hills, with precision. It is impossible to say precisely

precisely what may be the proper line, but there can be no doubt that an improved line could be found.

Taking the New Passage, do you conceive there is any hill between the New Passage by the present road, as steep as many of the hills between Bristol, Bath and Chippenham?—Certainly there are several in descending the Gloucestershire ridge where you must go to the northward of Dirham. As to the present road I think there are less hills than on the Bath; I think it will be found to be so; it appears so to me, though I will not venture to pronounce a positive opinion upon it.

Do you conceive that the present road from Chippenham to Bath and from thence to Bristol, is not capable of great improvement?—From Chippenham to Bath undoubtedly, it is capable of very great improvement.

Have not large sums of money within the last twenty years been laid out upon that line of road?—Not that I am aware of. I suggested to the Commissioners of the Chippenham road, a very considerable improvement more than twelve months ago, and which I think would shorten the distance from one to two miles; but not having any survey I cannot speak exactly to the distance that would be saved. I proposed that it should be by descending from the Wiltshire ridge above Box at or near Haselbury.

You cannot state the expense of the proposed alteration?—No, I cannot.

Mr. Henry Hubberly Price, again called in; and Examined.

Mr.
R. Wingrove.
(ag May.)

HAVE you any thing farther to offer, in addition to your former evidence?—In speaking before of the New Passage, I omitted to state what would be the advantage of a breakwater at Black Rock, upon the ebb tide, under peculiar circumstances. Supposing a pier to be built where my plan represents it, from the cliff to the end of the flat Rock; upon the ebb tide, with the wind strongly from the south-west, there is a very heavy sea thrown up soon after high water, and if a steam packet crossing from Chisde to Black Rock were to go to the westward side of that pier, and no breakwater to protect her, she would be completely exposed to the lash of the waves, but about the time of high water a breakwater to the westward would protect her from that swell: it would be inconvenient for a steam packet to go to the eastward of the pier (where, under the circumstances I have stated, she would find shelter), at the time of ebb tide, for the ebb would tend to set her on the pier, which would sometimes endanger the packet's paddle wheels. I also wish to say, with respect to the Old Passage, that supposing the plan which I recommended were adopted, of uniting the Old and New Passages into one concern, and of putting two steam packets at the Old Passage, that there are other means of crossing the mouth of the Wye besides a suspension bridge, it may easily be done by what is called a flying or floating bridge, capable of taking across carriages without detaching the horses, with perfect safety. We have many examples of this in our own country: at Arundel; near Plymouth; at Renfrew, and other places. At Antwerp, there is one; on the Rhine there are many, Nimuegen, Cologne and other places; and they are found to answer the purpose perfectly well. But besides this, the steam boat crossing from Aust would be able frequently to land passengers on the westward side of the Wye at the same slip where this floating bridge would usually ply to: there are certain times of the tide when it would be impossible to take a steam boat there, but on an average it would ply to and from this point three or four times a day, depending on the state of tide, which would save the embarkation at Beachley, and passengers would proceed directly from the westward side of the Wye.

Mr.
H. H. Price.

In all these instances which you have mentioned, are you aware of what the rise of the tides are, or whether there is any rise of the tide?—I am acquainted with the rise at Plymouth, where it is fourteen or fifteen feet.

At the mouth of the Chepstow river, what is it there?—I think forty-five feet.

Will not the difference of the rise of the tide produce a difficulty with regard to the floating bridge?—The difficulty would be in descending the banks, which we can easily accomplish by sloping slips parallel to the course of the river, at a moderate expense.

Have you considered what advantage or disadvantage it would be to the mouth of the Wye, to have a floating bridge?—I do not think there would be any disadvantage, nor any obstruction to the navigation.

What would be the expense of the floating bridge?—From 1,500*l.* to 2,000*l.* I think, would do it well.

What would be the expense of the road from this point of the river to join the present

Mr.
H. H. Price.
(29 May.)

present road to Newport?—The ground is extremely easy; the distance is 4½ miles, and I think two miles would pass along a parish road, by widening it so that it would not be very expensive. I do not remember any considerable bridge in it.

Would it pass through Mr. Lewis's park?—No, it would leave it on the left coming up from the Wye.

Is there not a considerable rise on that side?—There is a gentle rise the whole of the way; there is no hill to encounter from the mouth of the Wye to Crick.

In fact, you mean to come into the present road?—Yes, immediately beyond the place where the New Passage Road falls in at Crick.

Then how can you leave Mr. Lewis's Park on the left?—I have not a plan of it here, it would be about 200 yards from the lower entrance at the gate.

You leave it to the north?—To the south-west.

Where would it cross the road?—Near a very large beech tree, which is a very remarkable object.

What distance from Chepstow?—Two or three miles, it is immediately before you come to St. Pier gate; I have been over the line with Colonel Lewis, and there seems no objection on the part of the proprietors; in that case it would be necessary to make compensation for the abandonment of the New Passage. But instead of having one steam boat at each ferry, we might have two at the shortest, and any person coming down to the Passage, would only have to wait a quarter of an hour; whereas if they go to the New Passage, however improved, they might at certain periods be liable to a detention of an hour, to an hour and a half, and when they arrive across the Old Passage, they are so much nearer to London, if a good mail road were made to town.

How far would it be from the point of disembarkation to the floating bridge?—About a quarter of a mile; the road is very straight, and the levels good.

How far is it from Bristol to the Old Passage?—I think about twelve miles; one principal reason I have in view, in recommending the Old Passage is, that we who reside in South Wales, and gentlemen coming from Ireland to London, would be able, if the new line of road were made to London, to save many miles. Since I had the honor of being examined, I have been to the Tower with Colonel Colby, who was good enough to show me all the original plans of the country for the trigonometrical survey; and I have looked over them to form an opinion as to how far a road might be formed from London straight to the Old Passage; and measuring the distances from the plan, it appears that it would be desirable to go out from London along the Uxbridge road, 10½ miles, a little beyond Southall, and from thence by a new road, 3½ miles to West Drayton, crossing the river Colne; thence, still by a new road, 5½ miles, to fall into the present road to Slough, just opposite to the Dolphin Inn, one mile on this side of Slough, we find that we should make 18½ miles from the end of Oxford Road to the Dolphin, or 19½ miles to Slough, saving 1½ miles nearly in that distance, and this, by making only eight miles of new road; and when the New Post Office comes into action, it would be the most convenient road for the coaches to go out from Slough; we follow the present road to Maidenhead, the distance of which place would then be rather less than 24½ miles.

There would be no saving between the Dolphin and Maidenhead?—No, there could be no saving between those points; from Maidenhead, to get the most direct line for the passage over the Severn, it will be necessary to go to Henley in the first place, and it appears to be matter worthy of inquiry whether we could not save half a mile on the present road between Maidenhead and Healey, cutting off an angle between Hall Place and Rose Hill; from Henley, it would be necessary by a new road skirting the hill, to the southward of the Oxford road, to cross the Thames by a new bridge, either at Streatley and Goring, or perhaps higher up, about Moulsoford, according as by an accurate survey might be thought desirable; having crossed the Thames, there is some difficult country, but the object would be to get the road into the great valley of the White Horse Hill, (through which the Wilts and Berks Canal runs) and skirting the north side of the chalk hills, passing through Swindon to Malmesbury; this place is now, by Paterson's Book of Roads, 96½ miles from London, by the present circuitous route.

What length of new road would be required there?—I do not know precisely; for the whole of the original plans showing the present roads, were not in the office; they were sent into the country for the names to be corrected, and we could only refer to the engraving, which was unfinished; but it appeared by this that we should be able to reduce from four and a half to five miles from London to Malmesbury;
from

Mr.
H. H. Proul.
(29 May.)

from Malmshury to the Aust Passage House, in a straight line, is $22\frac{1}{2}$ miles; but it appears if it were practicable to make a road passing to the north of Badminton Park by Wickwar, a new road might be made of about 24 miles, being $1\frac{1}{2}$ miles more than a straight line. If on a minute survey of the road this were found practicable, the distance from London to the Old Passage would be about 115 miles; and if the letters from London for South Wales and for the South of Ireland, were dispatched by a direct mail down that line, at the rate of $9\frac{1}{2}$ miles an hour, which on such a road would be very practicable, they would arrive at Aust Passage House, in rather less than $12\frac{1}{2}$ hours from London. It would be very possible for the steam passengers to breakfast on board of the steam packet, which would require only a quarter of an hour for crossing the Severn; but if half an hour be allowed for the crossing and breakfast, it would be ample. By these means they would be in the coach on the Welsh side of the Severn by nine o'clock in the morning; and if they cross the river Wye near Ewin's Rock by a floating bridge, capable of taking the mail coach and horses on board, following the new road I have proposed up the valley to Crick; and that the improvement suggested by Mr. Telford from that point to Swansea be carried into effect; a coach travelling at the rate of $9\frac{1}{2}$ miles an hour, would arrive at Swansea in about 20 hours from the time it leaves London, or about four o'clock in the afternoon to dinner. The present time of arrival there is, I believe, somewhere about nine in the evening; this would give to the inhabitants of Swansea an opportunity of answering their letters that night and save them 24 hours in their correspondence with London and Bristol. I omitted to state, that it would be necessary to have the Bristol and Western letters brought up to Aust Passage to meet the London mail by half-past eight in the morning, so that by that means our correspondence from Neath, Swansea and those parts with Bristol, would be effected in twenty-four hours sooner than on the present plan.

Have you turned in your mind what the extent of the expense would be to effectuate this improvement?—It would be impossible to know how far old roads or parish roads might be taken through the valley of the White Horse and to Malmshury. I am inclined to think there are such roads which might be brought in, in part; and it is only by an express survey it could be ascertained. If this plan be effected, and the improvement of the road from Swansea to the steam packets in Milford Haven, be effected according to Mr. Telford's plans, it would appear there will be no difficulty in getting the mails on board by half past eleven at night; and if you allow 12 hours for crossing the channel, the letters for Cork would arrive there 24 hours earlier than by Dublin, for all purposes of correspondence. I have no doubt, as far as South Wales is concerned, that in order to meet the expenses of such an improved line, all traders would readily agree to an additional tax of a penny per letter, if the tax be general upon all letters passing through the country to and from Ireland. And if the improvement were such as to enable the inhabitants of Cork to get their letters and reply to them 24 hours sooner than by Dublin, I have no doubt more than double the present amount of correspondence would be carried over by the Milford packets; and by this means all the Irish letters would be paying for the improvement of our roads, consequently a lighter toll would be necessary for us who reside in South Wales, in order to meet all these expenses, the benefit of which we should feel every day. At a former period, when the survey of the New Passage was made by Mr. Stephenson, it was recommended by the committee who took the matter up at that time, to lay an additional tax of a penny a letter upon all letters crossing, to meet that particular object. This was objected to by many of the traders in Glamorganshire, and by myself among the rest, because we felt we should not derive an adequate advantage from it; but if we could save 24 hours in our correspondence with London, we should very readily pay for it, at least such is my opinion. In speaking of the distances from London by the proposed new general line of road, I have necessarily been only able to avail myself of the best information that could be derived from the Ordnance survey; but that a road somewhere along that line is practicable, I have no manner of doubt, a road on which His Majesty's mail might be carried at the rate of nine and a half miles per hour with perfect safety.

Do you apprehend there would be any new road required between Malmshury and the Passage?—Yes; it appears to be crooked, according to the plans, in various places.

Can you state what extent of new road would be required?—I cannot state that with any precision; the engraving of that part not being finished, and the drawings from

Mr.
H. H. Price.

(29 May)

from which they were taken having been sent down into the country to be corrected previously to publication.

The whole of the road from Maidenhead to Malmesbury and Aust would require more or less of new road, or material alteration?—Undoubtedly.

That is, about 76 miles of road?—Yes, more or less.

Are you aware of the distance between London and the New Passage, by the new road to Bristol?—I think it is about 131 miles, as near as I can remember, going through Bath.

Are you aware that the post arrives at Neath at eight o'clock in the evening?—Yes.

And the post back again does not leave until five o'clock in the morning?—It is possible, by sending for our letters, to get them out in the evening, but for the purposes of business it is seldom done.

There is an interval of nine hours between the arrival and the return of the mail?—Yes, in the night.

If an hour and a half can be saved in time, it will enable you to answer the letters by return of post?—Yes.

William Waters, called in; and Examined.

William Waters.

YOU are a native of the neighbourhood of Beachley?—I am.

You commenced the knowledge of the rivers Wye and Severn from an early period of life?—I did.

You were first apprenticed to a trading vessel?—I was.

And traded on the river Severn and in the Bristol Channel?—Yes, as far as Burton Ferry.

You were subsequently employed, we understand, in one of the Old Passage boats?—Yes.

How long were you in that employ?—Sixteen years.

Since that period how have you been spending your time?—I have followed fishing close about the ferry till within the last twelve months.

To what manner have you been employed during the last twelve months?—I have been working for a gentleman in that neighbourhood.

Did you ever act as a pilot on the river Severn?—I have.

Then the Committee may understand that you are well acquainted with the river Severn and the currents?—I am.

What do you call the distance across at the New Passage?—Two miles and a half.

Do you mean at high or low water?—At high water from house to house.

What do you call the distance of the Old Passage across from house to house?—One mile and a quarter.

Is there any difficulty at high water in crossing at the New Passage, from rocks or shoals?—No; there is plenty of water at high tide.

Whenever the tide is high there is no difficulty?—None.

How long do you reckon that plenty of water to last in the ordinary state of the tide?—About two hours ebb, and four hours flood.

Excepting at those periods there are considerable rocks and shoals?—Yes, there is a whole mass of rocks which runs across on one side and a sand bank on the other.

Which prevent the passage between being equally easy?—It forms a narrow channel which causes the tide to run to the north-west, which renders it difficult if not impossible to cross at the time of the ebb, and when the wind is easterly.

When the wind is easterly and you wish to pass from the Monmouthshire side of the Passage to the Gloucestershire side, is there any difficulty in certain states of the tide?—Yes, when the tide is running strong to the north-east, you cannot pass at all.

How long does that state of circumstances last?—Six hours each way in spring tides, but in neap tides not so strong.

How long does the spring tide flow?—Five hours.

How long does it ebb?—Seven.

And in all other tides there, it is pretty nearly equal?—Yes, they flow about six, and ebb about six; the neap tides.

Are the currents very rapid at the New Passage?—Yes, but they are strongest in the Shoals, not exactly where they cross, but in the narrow channel which is formed

skerned at low water; it runs in that channel at the rate of nine to ten knots in high spring tides.

What is the general run in ordinary tides?—About six knots I suppose, in neap tides in this narrow channel.

What is the ordinary run of the Shoots?—About eight; the Shoots lie a little below the passage.

The narrow passage where it runs ten knots an hour, is at the Shoots you mean?—It is that which is formed by the sands and the rocks.

You say that at a certain quarter of the wind there is no passing in a sailing boat; to what wind do you allude?—Not with a wind at the eastward after high water, till the first flow.

Could you pass with a wind to the eastward by a row-boat?—Up to Chepstow river; you must run up to the mouth of the river by the Old Chapel, and then get across that river.

What distance does that make it?—From seven to eight miles.

Do you think any steam packet could cross under the circumstances of wind and tide to which you have alluded?—Not with the wind to the eastward, and the ebb tide.

Has it ever happened to any of the steam packets plying between Bristol and Chepstow being prevented making the passage?—Yes.

By the run of the Shoots?—Yes.

But though not equally powerful, they have to pass the head of them?—Yes, they pass at the head of them.

In your opinion, is the current ever so violent to cross the head of the Shoots, that a steam packet could not go across?—A steam packet could not go straight across.

What is the case when it is necessary to force a passage with the mail by the New Passage, from the Monmouthshire side to the Gloucestershire side; where do they try to land the mail?—They make a course to the Lamplighter's Hole on the river Avon.

Do you know of that ever having been done?—Yes, very frequently.

What time does it take to effect a passage, with the wind easterly and the tide at ebb?—Two hours and a half, if they have to run down to Lamplighters hole.

Do you consider that sailing boats are as good as any that can be constructed to effect that passage?—Yes, I think so.

And you have known them do it in less time than others could do it?—Yes.

Is there any difficulty in effecting a passage from the Gloucestershire side to the Monmouthshire side at all times of the wind and tide?—Not by a steam packet.

You think it could always effect a passage from the Gloucestershire side to the Monmouthshire side?—Yes, I should think it could.

In fact, the difficulties attending the crossing of the New Passage are confined to the coming from the Monmouthshire side to the Gloucestershire side?—Yes, that is the only difficulty in the New Passage, with the wind to the eastward and the tide on ebb.

Supposing the wind to be the reverse, would it have the same effect?—No, it would not, on account of the tide setting with them.

In your opinion, is there always sufficient water to float any moderate sized steam vessel that would have to cross at that passage?—Yes.

And could always effect the passage?—Yes, if they had proper quays built to go alongside of.

You mean to state to the Committee, that there is no want of water to float them over safely on the other side?—No; there is no want of water.

It is only that they would have to stem the current in crossing?—That is all.

What sort of passage is the Old Passage?—We reckon it a much quicker passage than the other; we could do always double the quantity of work there than by the other.

You mean to say, that a vessel could go oftener the distance of a mile and a quarter than she could the other, which you say is two miles and a half?—Certainly; we have done it at the Old Passage in four minutes and a half. I have known it done in that time in a small boat.

Do you remember many instances in which you have not been able to make a passage?—No, I do not.

Will you take upon yourself to say, that there has been no instance in which you could not make a passage, if required?—I remember it once, that I could not make a passage, owing to a gale of wind, that was blowing heavy all the day. It was on a Wilsou-Thursdays, but I do not remember the year.

William Waters.

(29 May.)

At the same periods of tide of which you have been speaking, and which presented a difficulty at the New Passage, could you have made the passage over at the Old?—Of course the passage might have been made there.

Can they not pass over at certain periods at the New Passage, at which you cannot at the Old?—I do not conceive they can.

That in your opinion is quite clear?—It is; you may depend upon it.

For instance, when the wind is to the north-east on an ebb tide, can the passage be made?—Yes, there are certain periods of the tide when it can.

When the wind is to the north-east and with an ebb tide?—With a half tide ebb, and during the first quarter.

Does not the tide set strong between Slime Road Sand and Dod Rock?—Yes, it does.

Can you make a passage there with an ebb tide, and a wind to the northward?—Yes, you may.

Would you not, under those circumstances, be liable to be carried down?—No, I do not think you would.

The Hen and Chickens turn the tide?—It shoots it off; there is not half a mile of current on both shores at the time of ebb.

Can the passage be effected by boats at the Old Passage, when it cannot be effected at the New?—Yes.

For what reason?—It is a shorter distance, and we have eddies on both shores at the time of ebb.

Has the Old Passage a great advantage over the New, as to rowing or as to sailing?—We can do it quicker either rowing or sailing.

But so as to be able to go by the one when you cannot go by the other?—We have the advantage over the New with either.

In rowing or sailing?—In both.

Can you contemplate the possibility of any state of the wind and tide when you could not effect the passage from Aust to Beachley, and from Beachley to Aust?—The worst would be when the tide was at flood, and the wind was to the westward.

You mean from Beachley to Aust?—Yes.

Do you think a steam vessel could not effect a passage under those circumstances?—Yes, she could, but we could not do it with sailing boats.

Do you know the steam vessel intended to ply there?—I have never seen her.

Do you think she could effect that passage?—I do not know what power she is of.

Do you know what power the Cliepstow steam vessel is?—I do not know that.

With a steam boat, you think a passage might be effected at all times?—Yes, I see no difficulty in the way excepting as to landing.

The only difficulty which strikes you is the landing?—That is the only difficulty which strikes me.

Could such piers or landing places be formed on both sides without much difficulty sufficient to effect a landing?—Yes, I should think so, they are going to lengthen the old pier on one side.

At what rate does the spring tide run at the Old Passage?—Six to seven knots is general; off the Hen and Chickens it may run seven to eight.

Does it run strong off the Ulverstone?—No, not so strong off the Ulverstone; the strongest current there is on the flood.

What is the usual rate of the current?—About six knots at the Old Passage in that part of the channel.

When the tide is at ebb, at what rate does it run?—About five; and four at neap. You say that the tide runs to the north-west on the Gloucestershire side?—Yes.

Would not a steam vessel, by keeping by the Dun Sand, be able to make her passage?—She would not have sufficient water; the sand is sometimes five or six feet higher than it is at other times; it gathers and diminishes every spring tide; in order to get across, you must go as close to the rocks as possible without touching.

Is there plenty of water in general by the rocks at the Scars?—No, they appear at low water.

Could not a steam boat keep to the north of the Scar Rocks?—No, not at the ebb.

Do you know the Dampkins as they are called?—Yes, I do.

Does the tide run strong there?—It does. The Dampkins are in the Shoots and the Scars are also.

Suppose a steam boat was to go from the Gravel Quay to the Dun Sands, could she make a passage there?—She must go along the shoal to take advantage of it.

In

William Waters.

(19 May.)

In point of fact, is not the space which the water has to escape from the river Severn, wider at a certain hour of the tide at the Old Passage than it is at the New? —It is wider at the New Passage than it ever is at the Old, either at the high or low time of the tide; the Shoots have to empty the river Wye as well as the Severn.

There is not only more water to empty, but there is less space for it to pass through at the Old Passage than there is at the New, though the rocks and the shoals make the actual distance more?—Yes; there is not at ebb tide more than seventy yards space.

For some hours at certain states of the tide the actual space for the water to pass is much less at the New Passage than the space which the water has to pass through at the Old Passage?—Yes, it is.

How soon are what are called the English Stones up?—They go under at two hours and a half flood.

Till it ebbs again there is more space at the New Passage than at the Old?—Yes, a great deal more.

The higher the tide the greater the space?—Yes.

With the exception of five hours the water is over the English Stones?—Yes.

And consequently when covered there is more space at the Old Passage than at the New?—No, not so much.

After the English Stones are covered there is more space at the New than at the Old Passage?—Yes there is.

Consequently the water must pass with greater velocity at the Old Passage after the stones are covered, than at the New?—Yes; but the water does not all come up by the Old Passage.

With regard to the English Stones, taking flood and ebb, how many hours are they covered?—About six hours.

About half the time?—Yes.

And when not covered, the passage through which the water has to flow is less at the New Passage than at the Old?—Yes, a great deal.

Does not the tide run over that part of the rock, called The English Lake, before the English Stones are covered?—Yes, it does.

What is the width of that part called the English Lake?—A hundred yards; it is as wide as the Shoots in some parts; but it does not run through there till more than two hours flood; all the force of the water must run through the Shoots till then; it will take a little of it, but no great quantity.

How much does the tide rise at the Old Passage?—I should think forty feet perpendicular.

Did you ever navigate any of the packet boats?—Yes; I was master of one for fourteen years.

Which is up the soonest, the Lady's Bench or the English Stones?—The English Stones by an hour and a half.

The Lady's Bench is covered at an hour's flood?—Yes; and also a rock, called The Ruggy.

A RETURN of the RATES of POSTAGE for the Conveyance of Letters from London and from Bristol to Waterford, Cork, Limerick, and Clonmel, by way of Holyhead and of Milford Haven severally.

			By HOLYHEAD.		By MILFORD.	
			s.	d.	s.	d.
LONDON to	Waterford	- - -	1	11	1	2
	Cork	- - -	2	1	1	10
	Limerick	- - -	1	11	1	9
	Clonmel	- - -	1	11	1	5
BRISTOL to	Waterford	- - -	1	11	1	-
	Cork	- - -	2	1	1	8
	Limerick	- - -	1	11	1	7
	Clonmel	- - -	1	11	1	3

F. Freeling, Secretary.

Josia, 31^e die Maij, 1827.

Thomas Telford, Esquire, again called in; and Examined.

*Thomas Telford,
Esq.*

(31 May.)

THE Committee wish to have your opinion upon the best line of communication between Swansea and Caermarthen; you have given an opinion upon it to a certain extent, have you any reason to change your opinion?—None at all; I have taken a great deal of pains, and made several surveys, and taking for granted that the road was to go that way with the alterations proposed, it would be then a good road; still it is to go over high ground four or five hundred feet that cannot be helped, but by proceeding from Swansea and going up the valley a little to the west of Pontardulais, the ascent is made sufficiently easy. When arrived at the first summit, the road is circuitous, but still it may be rendered, by cutting off some bends, a pretty good road; after passing the second summit, the ascents and descents may be rendered pretty regular and good; approaching within seven or eight miles of Caermarthen, I found it necessary to deviate, so as to get into the valley a little higher up than the present road does, thereby avoiding the hills which are very bad, but by the before mentioned deviation, a very good descent to Caermarthen is obtained, and a pretty good road from Caermarthen to St. Clears. I have described very correctly, that with some improvements it may be made a very good road.

Have you come to any decision in your mind as to the road between the Passage and Swansea, upon that disputed point, about the crossing at Swansea and Neath; is there any thing settled about that?—That is a local matter, the county have, I understand, obtained an Act of Parliament, but what measures they have taken I do not know.

One of your projects was to carry the road much nearer to the coast, and crossing the River Loughor, to the town of Llanelly?—Yes, there was a survey made along the coast.

That line would be more convenient in point of bills?—Yes, the whole mass of the high ground would be avoided, and take in the towns of Llanelly and Kidwelly, but there are two rivers to cross.

Which would of course cause a very considerable extra expense on account of bridges?—Yes, especially the one that goes up by Caermarthen, there is a good deal of navigation upon it; the other one nearer to Swansea, there is also some navigation, but not so much.

Independently of this very low line, you have also taken a second line between Swansea and Pontardulais, deviating from the present line of road very considerably?—Yes, this is the road, there are two ways of getting to Pontardulais; there is this lower line, and that line; this is certainly the best line; but the other line may be made a tolerably good road.

There is much less new road to make that way?—Yes.

In the middle line, is there a great deal of new road to be made?—Yes, in the middle, it is mostly all new from Swansea to Pontardulais.

It would be a very expensive operation?—Yes, about one half would be saved by coming the upper line.

By following with certain deviations the existing road, you save about one half of the expense?—Yes.

But you would not have so good a line as the other?—No.

Presuming the improvements in the old line to be effected, at what rate do you imagine the mail could travel?—I should imagine, by the improvements in the old line, you can travel nine miles an hour.

Supposing you took the middle line, you could not go much faster?—About a mile difference, about 10 miles.

Can you give any rough estimate of the improvements in the old line?—No.

Would there be much fresh land to cut through?—One half of this would be wholly new.

The question refers to the old line?—No; for most of the old line I give up altogether. I take in the conjunction line and abandon the old line; nothing can be made of it; it is quite out of the question, as stated in my general report.

If you make the lower piece of road, do you make a new line?—Yes.

This

Thomas Triford,
Esq.

(31 May.)

This improvement would be of little or no avail if there was not some improvement from the town of Neath to the town of Swansea?—It would be very imperfect.

The greatest difficulty between Pyle and Caermarthen, is between Swansea and Neath?—Yes.

And then by bridges a great deal might be saved?—Yes; about five miles and all the hills.

The present road is five miles further, and very hilly?—Yes.

There is at present a road, I believe, from Pembroke to Cold Blow, which the road from the dock would join, a mile and a half from the town?—Yes.

That road is stated to be a pretty good road, but hilly?—It is a very bad road; the turnpike road is a road that ought not to exist.

Your plan would be not to join the old road at Cold Blow, but at Saint Clears?—Yes; in the plan I have laid down I took a vast deal of pains upon it; but still very high ground is to be crossed; but it would be quite inadvisable to make a landing place at Hobb's point and leave the old road by Cold Blow.

It could only be kept as a temporary thing?—Yes; it might be travelled over.

Do you consider the lower line, between St. Clears and Swansea, to be the best road, if there were funds to make it?—Yes.

How would you cross the rivers?—There are two or three ways; you might cross it, in the first place, by suspension bridges, but it would be very expensive; in the next place, there is a very good way of crossing a river, by fly boats, which might take three or four carriages at once, as is done upon the river Clyde, below Glasgow, where there is a vast deal of navigation.

You think that the plan you describe would not impede the navigation?—No; the navigation upon the Clyde is very great.

They would have to pass the river at night?—That is very inconvenient, certainly.

Is there much sea in this river where you cross?—No; it may be seen by the first map; I have turned up a good way till I found a sheltered position; but crossing at night certainly is objectionable.

Setting aside the expense of these bridges, would the expense of this road be much more than improving the present line of road?—Much more; but it would certainly make a much finer road, and would accommodate a manufacturing country along the coast.

But then you must take into consideration the interests of Caermarthen?—I take it for granted there will always be a mail by Caermarthen.

The communication between the towns of Swansea and Cardiff and Caermarthen would be cut off by that in a great degree?—Yes, it would; but the town of Caermarthen could not have much to complain of when they had a mail through it.

Have you formed an estimate of the road from Hobb's Point to St. Clears?—Yes, the Milford one would be made a better road, and go over a much lower country.

Did you survey the country between Neath and Pontardulais; is it possible to make a road from Neath to Pontardulais leaving out Swansea?—Yes, no doubt; but you would come over some very irregular ground; in the first place, between Neath and that river that comes by Swansea there is high ground, and again between that place and Pontardulais.

It has been suggested to the Committee, that a very considerable saving might probably be made on the road between London and Bristol, if a new survey were made of that country; can you form any opinion upon that subject?—I have no doubt there may be a considerable saving and some parts of the road much improved.

The Committee have had some idea of requesting the Treasury to have a survey made of that country; with that view and in that event they wish to see whether it could not be arranged that the trusts might be consolidated in such a way as to effect it?—In the first place you ought to have surveys and estimates, and then you know what you have to propose; first have it impartially surveyed and stated to you, and the distance and the expense, and then you can negotiate as you like.

You are not sufficiently acquainted with the road between London and Bristol, to point out the places where deviations might be made?—I could only speak from maps and general views; it is quite evident that the present line might be shortened a great deal.

Colonel Thomas Frederick Colby, called in; and Examined.

Colonel
T. F. Colby.

(31 May.)

YOU are acquainted with the upper line of the Gloucester and Carmarthen road?—No further than having travelled over it; a great part of the line between London and Milford has been surveyed, and I have brought the maps here.

Perhaps you can give us your opinion of the state of the country between the dock-yard at Pembroke and the communication with St. Clears and Carmarthen?—I know nothing farther of that country than what can be ascertained from the map. I have not examined it.

Do you know any thing of the road between Gloucester and Abergavenny?—I have not the plans of that part of the road.

You are engaged in surveying that road for the Engineer department?—I am engaged in a general survey of the kingdom.

What line do you consider to be most eligible between Swansea and Carmarthen?—It is difficult for any one to state that, without looking over the country with that particular view.

[The witness produced some maps.]

Mr. Henry Robinson Palmer, called in; and Examined.

Mr.
H. R. Palmer.

ARE you acquainted with that part of Milford Haven where the docks are situated?—I have seen it, I am not intimately acquainted with that part, I accompanied Mr. Telford there in his first perambulations.

Did you survey the passage across the Severn, called The New Passage?—I did.

Under the directions of Mr. Telford?—Yes.

Will you state what you consider to be the present situation of that Passage, as to the practicability of crossing it in all times of the tide, and all states of the wind?—I do not conceive it is possible to cross there at all times without the assistance of mechanical power.

By mechanical power you mean steam boats?—Either that or any other force that may be used.

The steam boat is that to which you would naturally look?—Yes.

Supposing a steam boat was established at the New Passage of proper dimensions, do you conceive the erection of piers would or not be necessary?—I should think the erection of piers would be very objectionable.

On what ground do you form that opinion?—On account of the rapidity of the current; any diminution of the sectional area would add to the velocity of the water.

Are you speaking of both sides of the Passage?—Yes.

Beginning with the Monmouthshire side, supposing the present ridge of rocks that runs out from the Black Rock were formed into a pier, do you conceive that that would increase the eddy in the way you describe?—It would be an additional obstruction, and the velocity of the water would of course be increased proportionably; that proportion would certainly be small, but if any construction were adopted, I should certainly conceive it highly imprudent to project anything into the current any further than is absolutely necessary, and that even upon a small scale.

Are the Committee to understand, that the velocity of the river is so great close to the land by the Black Rock, as to make any impediment to it increase the general velocity of the current?—It would have some effect that way, but the amount would be so small in proportion to the section, that I do not think as much as would be necessary for the accommodation of a single boat would be injurious.

Would it be possible to make a steam boat available at all states of the tide, unless some such pier was erected?—Certainly not, unless we took the converse and formed an excavation in the shore for its accommodation.

Which of the two plans would be most eligible in reality?—I should take part of each, I would project a certain distance, and the remainder I would excavate as being productive of the least injury to the current.

As being productive of the least injury, and at the same time affording the most facility?—Yes.

Taking part of each, do you consider the pier work would require a great outlay of money?—No.

To what amount do you conceive such an operation as that would extend?—It is very

Mr.
H. R. Palmer.
(31 May.)

very difficult to speak to the amount off hand; when I spoke of the magnitude, I, of course, referred to public works in general of that nature; I do not see, unless I took some time to consider it, how it would be possible to form anything like a guess at the amount, but judging comparatively, I should consider it a small work.

In no degree did you estimate the expense that would afford the necessary improvement to the landing on the Monmouthshire side of the New Passage?—I did not.

Of course, you are aware of the velocity of the tides on that side of the river?—Yes.

Does that velocity vary very much in different periods of the tide?—There is a difference but not very great; the greatest difference is just about high water, and just about low water, the velocity during the ebbing and flowing of the tide, remains pretty nearly similar.

The Passage at low water shows a great number of shoals and rocks?—Yes.

And therefore the immediate channel through which the water at low tides runs, is exposed to greater velocity than it would otherwise be?—I do not know that that is a matter of course, because the quantity of water is less that is flowing at that time.

Is it the fact?—It is the fact that the velocity of water is greater between those shoals than it would be if there were no shoals there, but the velocity of the current at that time during low water, is not so great as it is when the shoals are covered.

Then are the Committee to infer, that the difficulty of the Passage, as far as the velocity of the tides is concerned, is greater at another period of the tide than at low water?—I should say so at all times.

Do you know anything of the passage called the Shoots?—I have not an intimate recollection of it to enable me to speak of it precisely.

Do you know the position of it?—Yes.

It is near the Monmouthshire side of the Passage?—Yes.

Are you aware of the velocity of the tides in the Shoots?—No, I am not.

What are the difficulties of the Gloucestershire side of the Passage in forming a landing-place there, or how would you attempt to remedy those difficulties?—Any projection made from that side of the Severn would of course be exposed to a very considerable action of the water. Supposing a vessel to be lying on the active side of a new pier that was projected, the velocity would be such as to render a vessel in that situation unsafe; if the vessel be placed on the opposite side of the pier then I think the velocity of the water is such that its force in striking against the new pier would cause the water to dash over the pier, and be equally inconvenient to the vessel on the other side. The only plan that has occurred to me for affording any sort of shelter for a vessel, would be by an insulated pier standing at some distance from the shore, so that the water could pass on either side, and that the communication between this pier and the shore should be by means of a suspension bridge; that would not interfere with the motion of the water so much as a connected pier, and it might be made sufficiently safe.

Did it ever strike you that a place called Chisle Pill might be made available?—I do not recollect the situation of it, is it near the Passage House.

It is a pill that runs up towards the Passage House, which is almost dry at low water?—At high water that might be made available, but when the water was low it would be useless.

Did it ever strike you that that might be made a floating harbour for vessels at all times of the tide, by dock gates?—I recollect having considered that question at the time I was engaged there.

The opinion of Mr. Telford as to making the New Passage a good one, almost discouraged him from looking at it with the attention he otherwise would have done?—It did.

So that the same pains were not taken by you and his other assistants at that point as at other points of the survey?—They were not.

In fact, you may be supposed to have given it up in despair?—Not completely so; it was thought that the thing was practicable, but that the expense would be such as to render any further investigation quite useless.

Supposing expense were not to be at all considered, do you conceive alterations might be made that would have the effect of making it a safe passage?—I have no doubt of it in the world.

Did you ever make any accurate observation of the Old Passage?—I merely viewed it.

Mr.
H. R. Palmer.
(31 May.)

Were any improvements at that time going on there?—I do not recollect any improvements at that time.

Having viewed it, what is your opinion of that Passage?—I presume the question refers to it as a passage.

As a river which was to be crossed by some means or other?—At the time I was there I examined both passages certainly, but finding that the distance by the New Passage was so much less than by the other, and also thinking that one might be made equally as good as the other, all idea of passing at the Old Passage was at once abandoned.

Your directions were to survey from Bristol to Milford Haven?—Yes, they were originally.

You never contemplated any communication, except so far as Bristol was concerned with Milford Haven?—Certainly not.

Upon the cursory observation you made of the Old Passage, did it strike you that any means offered themselves of rendering it a good one, at much less expense than the New Passage?—It did; I thought a steam boat might be made applicable there at much less expense than at the New Passage.

Did you ever consider the possibility of a steam boat changing its landing place at the other side of the Severn to any other point than where the landing takes place now?—I surveyed several points on both sides of the channel, with a view to the passage; one was at the mouth of the Bristol river, and another at Weston-super-Mare and Uphill; from those it was intended to cross over to Sully; that was the only other point on the Welsh side besides the one I have mentioned.

The question referred to passing from the Old Passage, from the side where Aust is to the Monmouthshire side of the river Severn; whether you contemplated the possibility of a passage being effected to any other point on the Welsh side of the river Severn than that of Beacleley?—I contemplated no other point whatever; very little pains were taken with the Old Passage.

And no great deal of pains with the new?—Yes; the New Passage was pretty well examined, but on account of the circumstances I have before stated, we did not go fully into it.

As to all the other lines of road, a very considerable quantity of new road must be made on this side of the passage, before you can begin crossing the channel?—Yes.

And over a difficult country?—Not very difficult; we found a very favourable line from a place called Stoke's Croft to the Black Horse Hill; that hill could not be avoided, and that would remain as a defect; that would be, however, the only defect remaining.

It would be cutting through quite a new line of country?—Yes.

And the expense would be very considerable?—Considering the expense of road-making in general, I should not consider it very expensive; there are no serious cuttings.

But upon so great a line of new road the positive expense must be large?—Yes.

Did you survey the line of road from Bristol to Uphill?—No; I have only looked at it.

It has been surveyed?—I am not aware of that.

Did you examine the passage between Uphill and Sully?—I did.

What sort of a passage would that be?—I thought very good.

There are no rocks?—None whatever. I took the opinions of nautical men in the habit of navigating the Channel, and from all I could observe and collect I believed it to be a very good passage.

Much better than either the Old or the New Passage?—Yes.

What distance of road would be saved by adopting that line of route, by going from Bristol to Uphill, and crossing over the river Severn to Sully, and then joining the Milford Haven road again to Cardiff?—It is so long since I turned my mind to the subject, I feel some doubts as to my recollection; I think it was eight miles.

You have not sufficient knowledge of the country between Bristol and Uphill, to give an opinion upon that route?—It would be rather a difficult line.

There is a road there now?—Yes; but rather irregular.

Might it not be much improved?—Yes.

Are you able to speak as to the landing accommodation at Sully and at Uphill?—Yes.

What sort of accommodation is there?—Very good, every thing that could be required; it would require some expense to be laid out, I think about 10,000 £.

Have

Have you any doubt it would be a better passage than the other two?—No doubt of it; I have made the passage myself, often.

You could make the passage at any time of the tide?—Yes; I procured the evidence of two old sailors, who had been in the habit of coming over to Suilly at the time it was a common ferry, with pigs, for forty years, and they stated, that at no time were they unable to land.

You are aware that the river there is seven miles in width?—No, ten miles; I measured it from the Ordnance map.

Taking into consideration the difference of crossing there, and either at the Old or New Passage, and referring to the run of the tide at the different places, do you consider the passage would require much longer time to effect it at Suilly than at the Old or New Passage?—It would take longer, because the distance is greater.

There is a difference in the tide?—The tide is so much more favourable; it is totally unincumbered with shoals; you could always pass there with certainty at any time.

And pretty nearly with certainty as to the time?—Yes.

Did you survey the road from Suilly to join the Milford Haven road again?—Yes.

What sort of a road would it be?—A very good line; there were a few deep cuttings, but nothing serious.

If it were not for avoiding Cardiff and Newport, do you consider that line preferable to going over the Passage?—Yes, if the object be to communicate with the lower part of South Wales and Milford.

And with reference to time?—I should think it would save an hour.

Taking into account the expense of improving either of the Passages, and the improvement of the line of road, that part of the road from Bristol to Uphill, and from Suilly to Cowbridge, what would be the difference of the expense?—I do not think there would be a very great difference.

Are you in the habit of always going as far as you can by sea, and as little by land, in travelling quick?—That has been my practice hitherto.

You would go rather further by sea than by land?—If I had the advantage of steam, I should not mind.

In all states of the wind, whether it blew hard or not, or whether it is a tempest or not?—If it was a tempest, I should prefer the land.

Supposing you had to go this route every time of the year, should you prefer a long or short sea passage?—I think I should have as little hesitation in crossing in a steam boat at the Suilly, as crossing the New Passage by a steam boat.

You do not care whether you go seven miles or a mile and a half?—In those particular cases, I should prefer the broad open sea to a narrow rapid channel like that of the Passage; it is sufficiently broad to expose you to danger, and there is much more danger than at the other point.

Are you aware how many boats have been lost in the New Passage in the last twenty years?—I have not known of any.

Are you aware that trading vessels are sometimes lost opposite Suilly?—That I do not know.

You know nothing of the navigation, except what the pig gentlemen have told you?—I have obtained other knowledge from the captains of vessels, and particularly the pilots.

What pilots?—The Bristol pilots, that go out into the Channel to conduct vessels up the Severn.

They would rather go across to Suilly than across the New Passage?—They have not said that; they spoke generally of the difficulty of crossing there at all times, and the difficulty of managing their vessels.

May I ask, if any one of those individuals was ever in the habit of crossing the New Passage as the commander of a boat?—I am not aware that they have.

It was only from theory that they spoke of the difficulties?—They only spoke of that with which they were acquainted, which was the navigation of the Severn.

Up and down the Severn?—Yes.

Not crossing it?—No.

What were the persons who gave you this particular information as to the passage from Suilly to Uphill?—The information I conceive to be most practical, was from those individuals who had been in the habit of crossing there.

What were they?—Formerly ferrymen, who used to bring cattle over.

Was there a ferry there formerly?—Yes.

How many years is it since that was dropped?—About ten years.

Mr.
H. R. Palmer.
(31 May.)

Mr.
H. R. Palmer.

(31 May.)

For what reason?—On account of the objections that Mr. Thomas, of Suilly, had to the pigs and cattle being landed near his house.

Was Mr. Thomas the owner of the ferry?—He is the owner of Suilly Island.

Was this a legal ferry, or only one that was used when it was convenient?—I do not think it was a legal ferry, on account of his having the power to put a stop to it.

In point of fact, nothing but pigs and cattle used to cross it?—I never heard of any other.

But it is a quicker passage for persons going into Somersetshire or Devonshire, than going by Bristol?—A great deal.

And there is a great deal of communication, in the way of trade, between those parts of Glamorganshire and those parts of Somersetshire?—I believe all the trade has very greatly increased on both sides since the establishment of steam-boats.

By going over there you would leave out a very large manufacturing district between Bristol and Milford?—You leave two very populous towns out of the way.

What is the distance from Uphill to Bristol?—I think about twenty miles.

There is to be a new road formed the whole way to effect this purpose?—Not the whole distance, the greater portion of it.

There is a road most part of the way?—Yes, but a very indifferent one.

Are you aware that the vessels lost off Suilly, were lost there at night?—I have heard of one instance of a vessel lost off Suilly, and I was then informed that the loss was occasioned from some extreme ignorance of the Channel.

At night or the day time?—At night.

There are no impediments in crossing from Uphill to Suilly?—None.

No shoals?—No.

What time would it require to pass from Uphill to Suilly, in general, in a steam-boat?—From sixty to seventy minutes.

In that state of weather when it was dangerous to pass at this passage, would it be equally dangerous to cross either at the Old or New Passage?—Certainly.

Are you aware at what rate the tide runs between Suilly and Uphill at that part of the river?—I think about seven miles an hour.

Do you know at what rate it runs at the Old Passage?—I do not.

Are you acquainted with the rise of the tide at the Old Passage?—I have not it in my recollection; I think forty feet; it is upwards of forty feet.

Are you aware that the river Severn is suddenly contracted at the Old Passage, and much extended above and below it?—Yes.

Is the run of the tide increased at that point?—Yes, no doubt of it.

And being wider above, do you consider the tide runs much faster in consequence of the narrowness of the river at that spot?—No doubt of it.

Supposing practical men were to state the contrary, how would you support your theory?—By demonstration and facts.

Supposing persons in the habit of navigating vessels there, were to say the contrary?—I should say they were not aware of all the particular facts; it is a common thing to take currents at particular points, without taking them all over the space.

May not causes exist that prevent the natural operation of the contraction of a river?—It is possible, although a river may be much wider, it may be proportionably deeper, and if the sectional area was the same, the rapidity would be the same.

May not other causes exist?—I never heard of any.

As a matter of science, you would say it must be so?—Yes; it is a universal law of science, that the velocity of water is just in proportion to the sectional area.

If it be an object for the mail to arrive at Milford at a particular hour, would you prefer going over the Old Passage or Suilly?—Suilly.

Jovis, 7^e die Junij, 1827.

Mr. George Morris, called in; and Examined.

Mr.
George Morris.

(3 June.)

YOU are a general surveyor?—I am a surveyor and civil engineer.

Are you well acquainted with the country about Neath and Carmarthen?—Yes.

Do you know the country well between those places?—Yes, I know every inch of the country.

Do

Mr.
George Morris.
(7 Jan.)

Do you think it practicable to make a road from Neath to Caermarthen?—Yes, I do, I think it is practicable; I think there might be made a most excellent road from Neath to Caermarthen.

What distance would that road be?—I should think about thirty miles.

What line do you propose taking?—I should get as near as possible to Tonistock, and from that to Cross Inn, and from Cross Inn I would get somewhere about to Llandrog, and then to Caermarthen.

Would it be a hilly road?—No, it would not, it would be very little hilly.

Do you know the road from Swansea to Caermarthen?—Yes.

Would it be as good or better than that road?—Better than the present road.

Is there any road in that direction now, that could be taken advantage of in making the new road?—I do not know that you would; I am not quite sure that you could to advantage of line.

What is the present distance from Swansea to Caermarthen?—Twenty-eight miles.

You would save how many miles?—Six miles.

Do you consider it would be an expensive road to make?—Not at all; I suppose of that thirty miles, there would be twenty of it through the best materials that could be found, some part lime-stone, and the remainder very good materials.

You are speaking from actual observation?—I have surveyed nearly every inch of the country, and a considerable part of South Wales; there is scarcely any part that I do not know.

In the line of road that you propose, you cross the rivers Tawe and Clydach?—Yes; and then I go up to about three miles, which is very easy, not half an inch in the yard, and then I would go to Cross Inn, and then you would run up, and cross the great mountain, and you would have a very gentle rise to the summit level.

There is a very considerable hill on the eastern side of the Tawe, close to that bridge?—Nearly flat for three miles.

How near would that road approach to some parts of Swansea?—The nearest part would be about five miles and a half, from that to six miles.

Can you form any estimate of the expense of making it?—I think, including bridges, for about 1,200*l.* per mile.

At what breadth?—At 30 feet wide clear.

What distance is it?—As near 30 miles as possible.

Would this open a communication through a valuable country?—A very fine country.

And there is no road there now?—There are roads, but they are very bad, not such as you could avail yourselves of in this important measure.

It would save six miles?—Yes; you would save an hour in the time.

Are the hills so easy as not to oblige you to drag down them?—Certainly; the hills may be so arranged and scientifically laid down, that you might go down as easy as possible.

Is this statement made from actual survey?—No, only from living in the neighbourhood twenty years.

You have taken no exact measurement?—No.

Nor the elevations?—No; I was merely asked the question yesterday.

Your practical experience enables you to speak to the point without those means?—Yes; I have had as much experience as any man in laying down roads.

Just mention some line of road you have laid down during this long experience?—I am speaking of tramroads; that I call scientific road-making.

You never made a new turnpike-road?—I had a good deal to do with the turnpike road from Pontardulais.

What distance is that?—Ten miles.

You have never surveyed this line of road between Neath and Caermarthen?—No, I never have.

You have never taken any level?—No.

Nor ascertained in any scientific way the rise or fall of that road?—No.

Then, in point of fact, your evidence proceeds from a knowledge of the country, and the guesses that that knowledge enables you to form?—Yes.

What would be the highest point you would have to pass?—I cannot tell.

There are various points that are higher than the points upon the road between Swansea and Caermarthen?—I do not know that they are; I cannot speak to that positively.

Then what are the grounds upon which you say that this is a better line of road?—My

Mr.
George Morris.
(7 Jan.)

My reason is, that I think upon the new line it could be so arranged, that whatever may be the summit level, it may be made extremely easy.

Are you speaking of the line of road that now exists between Swansea and Caermarthen, or one that might be formed, or that which you propose from Neath to Caermarthen?—Yes, I am speaking of the proposed road.

You think no deviation can be made, other than that which you propose?—I will not say that, from Swansea to Caermarthen.

You will not say that a better line of road may not be made from Swansea to Caermarthen than that by Neath to Caermarthen?—It might be as good.

Your object is to recommend, that the mail coach should go through Neath rather than Swansea?—I am only speaking simply of the distance.

You start from Pyle?—No, from Neath.

Taking the road from Cardiff to Neath, and taking the road, as recommended by Mr. Telford, from Cardiff to Swansea, and from thence to Caermarthen, which would be the longest distance?—From Cardiff to Swansea.

You answer that question more upon opinion than any thing else?—I answer it from a knowledge of the country.

Knowing the country, and from your own opinion, will you tell me which you conceive will be the best, taking it from Cardiff to Swansea, or from Cardiff to Neath?—Unquestionably to Neath, and through Neath to Caermarthen.

You conceive that the new line that Mr. Telford has proposed, is not eligible?—I do not know his line.

Your evidence comes to this, that a good road may be made from Neath to Caermarthen?—Yes, a very good road.

You can give no opinion as to the line laid down by Mr. Telford?—I do not know his line.

Any opinion of yours goes upon very loose grounds?—I am speaking upon positive opinion; I know it is the nearest way and the best country.

Have you ever surveyed the line of Mr. Telford?—I do not know the line.

Then how can you form an opinion of a line you never surveyed?—I never spoke of his line, I do not know his line.

Then you cannot state any comparison?—If he goes to Swansea he is wrong, if he means to go for expedition.

You state that it is impossible to get to Caermarthen by such a line as would enable him to go to Swansea in such a time as if he went by Neath?—Yes.

You know the levels?—I do not know his line.

You speak from general knowledge of the country?—Yes.

From no positive survey of the country can you give any opinion?—No.

It is a matter of opinion formed from knowing the face of the country?—Yes.

You know the country well about Neath and Swansea and Briton Ferry?—As well as I know this room, every inch of it.

And from its relative bearings you are enabled to say it is a nearer way to go through Neath than Swansea?—Yes, if you went through Neath; upon the present line through Swansea you would lose six miles, and you would lose one hour in going to Caermarthen.

You do not mean to say a shorter line might not be made?—If you chose to throw a bridge over Briton Ferry you would save the distance of going to Neath, about four miles.

You say you are accustomed to forming tramroads?—Yes.

Does not that require very great nicety?—No man can form a good public road, who is not a tramroad maker.

If a man can make a good tramroad, does not it follow that he can make a good turnpike road?—Yes, he is the only man that can; because a tramroad is a thing, that if it is not laid in every part and pared upon scientific principles, you cannot pass over it.

Do you think it is possible for a person going over a country generally, to state every rise and fall there is in that country?—No; but he can form a very accurate judgment of the line of country.

Can he form an opinion whether a road can be made without a very considerable rise or fall?—Yes, certainly; and in any proposed line, you will have a most excellent line of country to go through all the way.

A man accustomed to these matters, can judge whether a road can be made at a tolerable activity, by going over it?—Yes.

If

Mr.
George Morris.
(7 June.)

If you were going to make a tramroad, you would make a survey of the line?—
Yes, certainly.

You would not trust to a general view of it?—No; you would take the summit level, and reduce it to a regular fall.

You would never offer a project without a survey?—Yes; very often a man gives an opinion without a survey.

You would never begin the work without a survey?—No.

If there should be two points, one a considerable number of feet above the other, knowing the height of the two points, he can judge whether it can be made or not?—
Yes; you must take the rise and fall, and reduce it to a regular incline; and if all made are not done so, they must be wrong.

Do you conceive you would have to go over a higher summit level in the road from Neath to Caermarthen than from Swansea to Caermarthen?—I think not.

You have stated, that in going from Pyle to Swansea, a saving would be made of four miles?—Yes, I should think so; about that.

Have you ever measured the distance?—No; but I have gone it very frequently.

Have you ever measured the distance, according to the line you propose, in going from Neath to Caermarthen?—No; but it is always reckoned something under thirty miles.

You say there would be a saving of six miles?—Yes; if you went round by Neath.

Are you aware that Mr. Telford has made a very accurate statement of the road crossing at Beiton Ferry, and that he has stated the saving would be five miles and a half, instead of four?—Perhaps it may be.

You speak only from guess; and what you suppose to be four, is five miles and a half; that makes a considerable reduction?—Yes it does.

If you made the road a good road from Swansea, and the road from Neath a good road, you would run very nearly as quick by the one as the other?—Yes.

Looking at the improvement of the road from Caermarthen to Swansea, and the formation of two bridges, and looking also at the new line of road, what would be the comparative expense of the two?—I should think that the bridges would cost more than the new road itself.

In making the new road, would there be any distance saved from Swansea to Pontardolais?—No;—the distance would be the same.

There would be a considerable difference in the level?—Yes.

It would cost double the sum to make a road to cross Beiton Ferry and that line, compared to the other?—Yes; in my opinion the bridges must be attended with enormous expense; you cannot stop the navigation, you must have them very high indeed.

In passing from Neath to Ynyspencwlch in the way you recommend, you must go further into the country a great deal?—Yes.

Must there not be higher levels in the interior of the country?—I do not think there would be; there are vales through which you can get up very easy.

Is the country through which you propose the road to run from Neath to Caermarthen very populous?—Yes.

More populous than between Swansea and Caermarthen?—Yes, much more so.

And the soil much richer?—No; the soil upon both roads is very bad. When you get over to the bridge at Clydach, you get into a very populous country, and through a coal country; and you may get into the Swansea and Caermarthen line, when you get upon the Great Mountain, if you choose.

Is it a limestone country?—Yes; the Great Mountain is a limestone country, and so is the neighbourhood of Cross Inn.

Do you know any thing about the coast near Swansea?—Yes.

There is a good deal of populous country there?—Very much.

This proposed line would be taking the mail coach communication further from this line?—Yes; but you get still to Caermarthen. There have been several projects of making a road through Loughor and near Spitty; I am afraid it never can answer.

I ask you, as a person having lived a long time in that neighbourhood, do you think the line you propose could be effected by any thing like private subscription?—I cannot say.

You do not know enough of the riches of that country to state an opinion upon that point?—If my Lord Dynevor was here he could answer that, or Lord Cawdor; I should think it not at all improbable.

Mr
George Morris.
(7 June.)

Are not the inhabitants and people connected with Swansea, more likely to subscribe towards an undertaking of an expensive nature, than those resident on your proposed line?—There are, in my opinion, very small hopes at Swansea.

You would trust to the other line?—Yes, I should indeed.

You think there is much more likelihood of a subscription on the other line?—Yes; I should think so.

In the road you propose, you pass near some iron works?—Yes.

How far will you leave Pontardulais to the left?—About eight miles.

Is it an excellent country?—Yes, to form a road, until you come into the old line of road, and then the materials are not so good.

What road would you come into?—The present road; somewhere under Llandarrog, and then I would leave Llandarrog to the left about a mile, and get rid of all those hills.

You go near the river?—Yes, I think I should, before I got to Caermarthen.

There is a road open from Neath over the bridge we have spoken of, to Llandigo?—I think there is a road, called Lord Dynevor's road.

Across the Tawe, that is the line of road you mean to take?—My conviction is, that the line to make the road, would be up Streak's Colliery, that is a gentle rise for three miles and a half, and then you get up to the summit level over Grnny, and then let yourself down as gently as you can to Cross Inn.

Did you ever look to this road for the purpose of forming your opinion, whether this would be an advantageous line, or are you speaking from a general recollection?—From a general recollection.

And a knowledge during twenty years residence in the neighbourhood?—Yes.

A great proportion of that populous country has communication with Swansea, in all commercial matters?—Yes, unquestionably.

People who live there are more connected with Swansea than any other town in Glamorganshire?—I think they are.

This road would be of very great importance to this country, independently of being a mail coach road?—Very important. I am persuaded Lord Dynevor, and Lord Caudor, and Mr. Lewis, &c. &c. would come forward and subscribe most liberally to a thing of this sort.

It would be their interest to do so?—Yes.

Alexander Nimmo, Esq. again called in; and Examined.

*Alexander Nimmo,
Esq.
(7 June.)*

YOU have committed to paper and delivered in an estimate of the expense of forming a station for the packets at or near Hobb's Point?—Yes, I have.

And a plan accompanying it?—Yes.

[The following paper was read.]

Sir,

London, June 6th, 1827.

HEREWITH I have the honor to submit a Plan for a quay at Hobb's Point for the Milford packets, with an Estimate as near as the surveys shewn to me would permit it to be made up.

As there is a ten feet rock shown off the Point; I propose a jetty to be carried out to that rock two hundred feet of quay, from thence along shore in a depth from one to two fathoms at low water springs. This will be laid six feet high in diving bell work, the end walls dry masonry only.

As it will be inconvenient to land coals at a quay where there is so great a lift of tide, I propose to form part of the road along Lanyun Bay into a coal wharf. The stores, however, should be as near as possible to the packets, and I propose to build them on the quay first mentioned. This is found a great convenience at Danmore. There seems to be a good site between the two quays for the hotel.

By means of two leading lights, as shown on the plan, the packets will be sufficiently well guided past the Car Rock at night. In a fog they will go by the lead.

As

As Noyland Roadstead is one of the best anchorages in the Haven, there seems no occasion for more quay wall than I have drawn, which will admit of two packets at a time to lay alongside.

Alexander Nimmo,
Esq.

(7 June.)

Estimate for the Packet Quay.

	£.	s.	d.
Rough stone filling foundation - - -	400	-	-
Bell work - - - - -	3,600	-	-
Quay wall - - - - -	3,350	-	-
Rough walling for ends and filling the quay -	1,216	13	4
Contingencies, &c. 20 per cent - - -	1,713	6	8
£.	10,280	-	-

The Postmasters General of Ireland have a diving bell and apparatus at Dunmore, which may be spared for this work.

Estimate for coal wharf in Lanyon Bay 300 feet of wall, 15 feet high.

Complete at 5 l. - - - £. 1,500 - -

Estimate for coal store - - - 1,200 - -

Alexander Nimmo.

Sir John Newport, Bart.

Do you look upon that to be the best place at which the packets could be stationed?—It seems likely to answer the purpose very well.

Does it appear to you that the lights which are mentioned on the plan, would answer the purpose of giving a facility to packets for navigating with security past the Car Rock?—I think they will; the sand that is upon the eastern side of the Car Rock, is not very well marked at present, but will be much better defined if those leading lights were put up, they would answer for the purpose of enlightening the pier, being merely such lights as are used at Howth and Holyhead.

Has there not been a report made to the Postmasters General of Ireland, of the entire progress and completion, as far as it is completed, of the Dunmore Harbour?—Yes, and it is ready for this Committee, if they choose to call for it.

Can you tell us the expense of the bridge at Blackwater, near Youghal?—It will be about £. 15,000. a wooden bridge; since I was examined last, I have completed my survey, and I must correct, in some degree, the opinions I gave before; I do not expect that we shall be able to make the bridge near the town, you must go higher up.

The estimate relates to the bridge at Rencrew?—A little below that; one main object being to lay one end of the bridge in the county of Cork, because by getting it in two counties, we should get a little county aid; but besides that, it saves a mile, and brings the lower part of the bridge a mile nearer to the town of Youghal.